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**Execution of the Interim Remedial Measure
for the Former Carborundum Company -
Electric Products Division, Hyde Park Facility
Town of Niagara, Niagara County, New York
SITE NO. 932036**

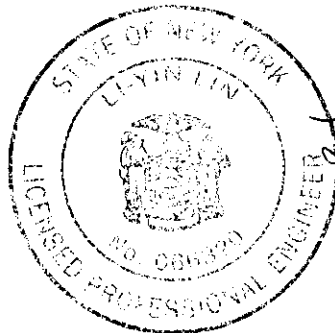
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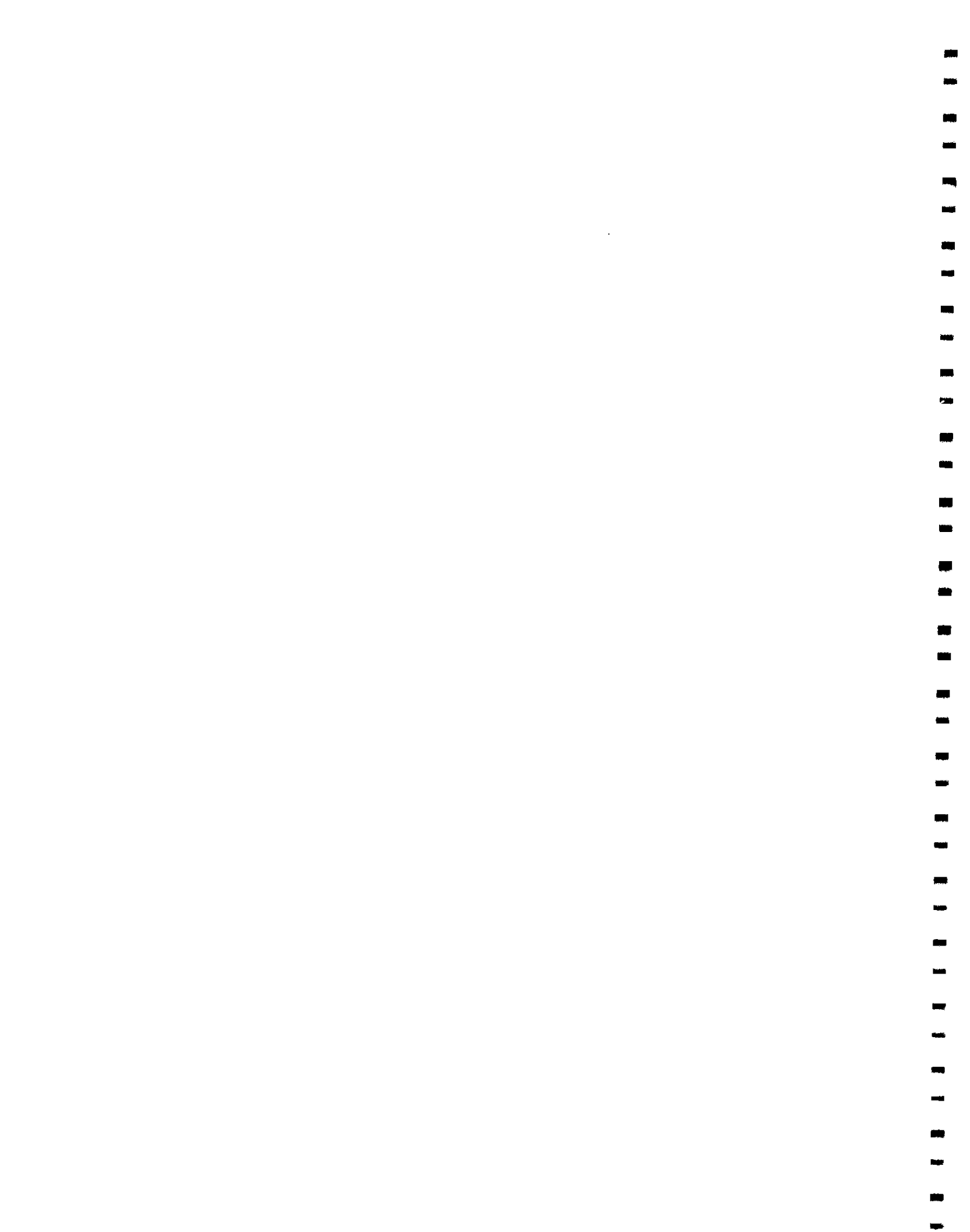
Duke Engineering & Services, Inc.



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TM8097

December, 1999



EXECUTIVE SUMMARY

The former Carborundum Company's Hyde Park facility ("site") in Niagara Falls is listed on the New York State Department of Environmental Conservation's (NYSDEC) list of Inactive Hazardous Waste Disposal Sites. The site, which is classified as a Class 2 site, is identified as Site No. 932036. A Class 2 site is defined as a site that poses a significant threat to the public health or the environment and requires mitigative action.

A Remedial Investigation (RI) of the site was completed in 1996 by Duke Engineering & Services, Inc. (DE&S), a Phase II RI was completed in May 1998, and a borehole investigation was completed as part of this interim remedial measure (IRM) in September 1998. Results of the RI, Phase II RI and IRM investigation indicate that soils in five areas on the property contain volatile organic compounds (VOCs) and/or polycyclic aromatic hydrocarbons (PAHs) at concentrations that exceed NYSDEC Soil Cleanup Objectives.

A work plan and a plans and specifications document for conducting soil removal as part of an IRM were submitted and approved by the NYSDEC. An IRM is a planned action(s) that can be conducted without extensive investigation and is designed to be a permanent part of the final remedy for a site. The purpose of this IRM was to excavate contaminated soils from the property in order to remove a source of contamination to groundwater. The overall objective of the IRM was to affect an improvement in groundwater quality with time following source removal.

The specific objectives of the IRM included:

- i) Refine the extent of known soil contamination to allow cost-effective and efficient removal of soils. This objective was achieved through a borehole drilling and soil sampling program to refine the extent of contamination.
- ii) Excavate contaminated soils and test to determine appropriate disposal options. This objective was achieved through a test pit program that allowed pre-characterization of soils for disposal.
- iii) Dispose of soil at appropriate facility.

The IRM field program included the installation of boreholes and collection of soil samples prior to excavation plan development to define the lateral and vertical extent of soils containing contaminants of concern (COCs) at concentrations that exceed:

- NYSDEC Soil Action Levels that are listed in the "Contained-In" Policy, and
- NYSDEC Soil Clean-up Objectives that were determined for the site based on the procedure described in NYSDEC TAGM HWR-94-4046, January 24, 1994.

During the IRM drilling program, 39 boreholes were completed within the fenced area of the facility to supplement previous soil sampling and to better define the lateral and vertical extent of soils containing COCs above NYSDEC Soil Clean-up Objectives.

Following the IRM investigation, an air dispersion model was constructed to evaluate the potential impact of excavation activities on employees currently working at the former Carborundum Company Facility, and to the general public in the vicinity of the site. The air model was used to help develop an excavation plan that would minimize potential air impacts during execution of the IRM. Concerns for potential emission or volatilization of contaminants into the air during excavation and removal of contaminated soil were evaluated by using the air model to simulate excavation conditions at the site. This simulation was constructed to mimic site weather, wind pattern, and contaminant concentrations in soil as closely as possible. The results of the air modeling indicate that emission of contaminants from the site during excavation could be significantly reduced if stockpiling of contaminated soils on site could be eliminated or reduced. In addition to air modeling, continuous air monitoring was conducted during excavation at the site to ensure that site workers and area residents were not exposed to VOCs in air or excessive dust. No significant VOC or dust concentrations were detected during the IRM that would indicate a potential for site worker or community concern.

Based on the results of the air modeling work, a test pit sampling program was conducted in April 1999. The purpose of the test pit sampling was to pre-characterize contaminated soils for disposal purposes. This pre-characterization allowed the excavation of soils directly onto trucks to be hauled off-site to an appropriate disposal facility, minimizing the need to stockpile soils on-site.

Soil excavated from the site was segregated into three categories for disposal purposes. These categories include:

1. Clean Soils - Soil with contaminant concentrations below the NYSDEC soil clean-up objectives for VOCs and/or PAHs.
2. Non-Hazardous Soils - Soil with contaminant concentrations above the clean-up objectives for VOCs and/or PAHs, but below the action level concentrations for VOCs. There are no action level concentrations for PAHs.
3. Action Level Soils - Soil with contaminant concentrations above NYSDEC action levels for VOCs.

A total of 67 test pits were spatially located within planned excavation areas at a frequency of approximately one per 800 ft² area. At least two test pits were located in each excavation subarea. Test pits were located so that they did not overlap previous sampling locations in order to identify any unknown localized zones of contamination. The results from test pit sampling determined that contaminated soils at the site could be disposed as non-hazardous waste, except for soils in three areas: Areas 2C, 2D and 5. Soils from areas 2D, part of 2C, and 5 were managed as action level soils and disposed in a RCRA Part 373 landfill. Soils from Area 2D failed Toxic Characteristic Leachate Procedure (TCLP) testing due to trichloroethene and were disposed using waste code D040. Soils from Area 5 also failed TCLP testing due to lead and were disposed using waste code D008. Soils from part of Area 2C exceeded action levels for vinyl chloride and trichloroethene. Soils from this area were disposed using waste codes U043 and U228.

A photoionization detector (PID) was used to screen soils for VOCs as they were excavated. Based on PID readings, field observations, and test pit sampling results, soils were segregated for use as clean backfill, disposal as non-hazardous waste in Modern Corporation's RCRA Part 360

landfill, or disposal as action level soil in CWM Chemical Services' RCRA Part 373 landfill. Non-hazardous soils were loaded directly onto trucks for off-site disposal. Potentially clean soils were stockpiled and sampled to confirm that they could be used as clean backfill. Potential action level soils were stockpiled on-site and sampled to confirm that they could be properly disposed at CWM's facility. A total of 35,606 tons, or approximately 23,700 yd³ of soil was excavated and removed from the site between May and August 1999.

Once it was believed that soils containing COC concentrations above NYSDEC Soil Clean-up Objectives were removed from each area, DE&S field personnel conducted verification sampling of the floor and walls of the excavation. Verification samples document the condition of soils left on-site on the walls and floors of the excavations. Verification samples were collected based on the following sampling rationale:

- Samples were collected in areas suspected to have the highest COC concentrations based on visual or olfactory evidence of contamination, or on PID readings; or,
- If no evidence of contamination was observed, samples were collected from material types believed to be most heavily impacted based on site conditions or grain size, etc.

Some verification samples contain COC's above cleanup objectives. This is due to site conditions that prevented the removal of all contaminated soils from the site in some areas. Areas where contaminated soils remain on-site include: Areas 1A/1C, 1D-extension/2C and 2A.

Several verification samples collected from the north wall of areas 1A/1C exceeded the clean-up objective for trichloroethene and/or PAHs. These samples do not represent contaminated soil remaining on-site because the north wall of areas 1A and 1C extended to the north property boundary.

Approximately 700 yd³ of non-hazardous soil containing VOCs remains on-site below 20ft in depth in areas 1D-extension/2C. Verification sampling results also indicate that one verification sample contains vinyl chloride above the action level in area 1D-extension on the floor below the former location of the solvent storage area at 24 ft depth. An estimated 40 yd³ of action level soil remains on-site at this location. Additional excavation in these locations was not possible because of significant concern for reduced slope stability near the liquid nitrogen above-ground storage tank (AST).

Verification sampling results indicate that non-hazardous soil remains in area 2A in four locations: at the east wall corresponding to the property boundary from 0 to 16 ft in three samples, on the west wall near the hydrogen gas cylinders from 10 to 16 ft in one sample, on the floor in the north-east corner in one sample at 24 ft, and the floor in the west end in six samples at 18 to 24 ft.

Excavating further east was not conducted because the excavation extended to the east property boundary. An estimated 800 ft² of non-hazardous soil remains between 0-16 ft in depth on the east property boundary. Excavating further west was not possible due to the proximity of the hydrogen gas cylinders. An estimated 60 yd³ of non-hazardous soil remains between 10-16 ft in depth on the west wall. Excavating deeper than 24 ft in the north-east corner was not possible

because of significant concern for reduced slope stability. An estimated 80 yd³ of non-hazardous soil remains below 24 ft in this area. Excavating deeper than 18 to 24 ft on the floor in the west end was not possible due to the presence of loose sands, silts, gravels and boulders in this area that caused a significant concern for slope stability; the proximity of the hydrogen gas cylinders and the liquid nitrogen AST; and significant groundwater seepage that compounded slope stability issues. The estimated volume of non-hazardous soils remaining on the floor below 18 ft depth in the west end of area 2A is 1,100 yd³.

Verification sampling results also indicate that action level soil remains in area 2A on the east wall in one sample. An estimated 150 ft² of action level soil remains between 10-16 ft depth in this area. Excavating further east was not conducted because the verification sample was collected at the east property boundary.

A total of 35,606 tons, or approximately 23,700 yd³ of soil were excavated and removed from the site. An estimated total of 1980 yd³ remains on-site at depths below 10 feet. The volume of soil remaining represents approximately 8% of the total volume of identified contaminated soil. Over 90% of contaminated soils have been removed from the property, including over 2000 tons of action level soil. Given the removal of most of the contaminated soil, the IRM objective of improving groundwater quality with time should be attained.

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LIST OF ACRONYMS

ASP	Analytical Services Protocol
AST	Above-ground storage tank
ASTM	American Society for Testing Materials
CL	Clay - Unified Soil Classification System designation
COC	Contaminant of concern
CWM	CWM Chemical Services, LLC; a Waste Management Company
DE&S	Duke Engineering & Services, Inc.
ft	Feet
ft BGS	Feet below ground surface
ft ²	Square feet
HDPE	High-density polyethylene
IRM	Interim remedial measure
LEL	Lower explosive limit
NYSDEC	New York State Department of Environmental Conservation
PAH	Polycyclic aromatic hydrocarbon
PGM	Personal gas monitor
PID	Photoionization detector
ppm	Parts per million
PSA	Preliminary Site Assessment
PVC	Polyvinyl chloride
QA/QC	Quality assurance/quality control
RI	Remedial Investigation
RPD	Relative Percent Difference
SC	Clayey sand - Unified Soil Classification System designation
SM	Silty sand - Unified Soil Classification System designation
STEL	Short-term exposure limit
STL	Severn Trent Laboratories
TAGM	Technical administrative guidance memorandum
TAL/TCL	Target analyte list/target compound list
TCE	Trichloroethene
TCLP	Toxic Characteristic Leachate Procedure
µg/Kg	Micrograms per kilogram
USCS	Unified Soil Classification System
VOC	Volatile organic compound
yd ³	Cubic yards

1. INTRODUCTION

The former Carborundum Company's Hyde Park facility ("site") in Niagara Falls is listed on the New York State Department of Environmental Conservation's (NYSDEC) list of Inactive Hazardous Waste Disposal Sites. The site, which is classified as a Class 2 site, is identified as Site No. 932036. A Class 2 site is defined as a site that poses a significant threat to the public health or the environment and requires mitigative action. Figure 1 provides a site location map.

A Remedial Investigation (RI) of the site was completed in 1996 by Duke Engineering & Services, Inc. (DE&S), a Phase II RI was completed in May 1998, and a borehole investigation was completed as part of this interim remedial measure (IRM) in September 1998. Results of the RI, Phase II RI and IRM investigation indicate that soils in five areas on the property contain volatile organic compounds (VOCs) and/or polycyclic aromatic hydrocarbons (PAHs) at concentrations that exceed NYSDEC Soil Cleanup Objectives.

A work plan and a plans and specifications document for conducting soil removal as part of an IRM were submitted and approved by the NYSDEC. Removal of contaminated soils was executed as a permanent part of the remedial solution for the site.

This document provides details on the execution and results of the IRM. The remainder of this section describes the purpose and objectives of the IRM program, the NYSDEC "Contained-In" Policy that was invoked during site cleanup, and provides a summary of the results of the IRM soil boring investigation completed at the site in September 1998. Section 2 provides details on the methodology and procedures used during the completion of the IRM. Section 3 provides the results of soil excavation and disposal. Section 4 provides results on soil conditions at the site following the IRM. Section 5 describes site restoration.

1.1. PURPOSE AND OBJECTIVES OF THE IRM PROGRAM

An IRM is a planned action(s) that can be conducted without extensive investigation and is designed to be a permanent part of the final remedy for a site. The purpose of this IRM was to remove contaminated soils from the property in order to remove a source of contamination to groundwater. The overall objective of the IRM was to affect an improvement in groundwater quality with time following source removal.

1.2. SCOPE OF WORK

The specific objectives of the IRM included:

- i) Refine the extent of known soil contamination to allow cost-effective and efficient removal of soils.
- ii) Excavate contaminated soils and test to determine appropriate disposal options and,
- iii) Dispose of soil at appropriate facility.

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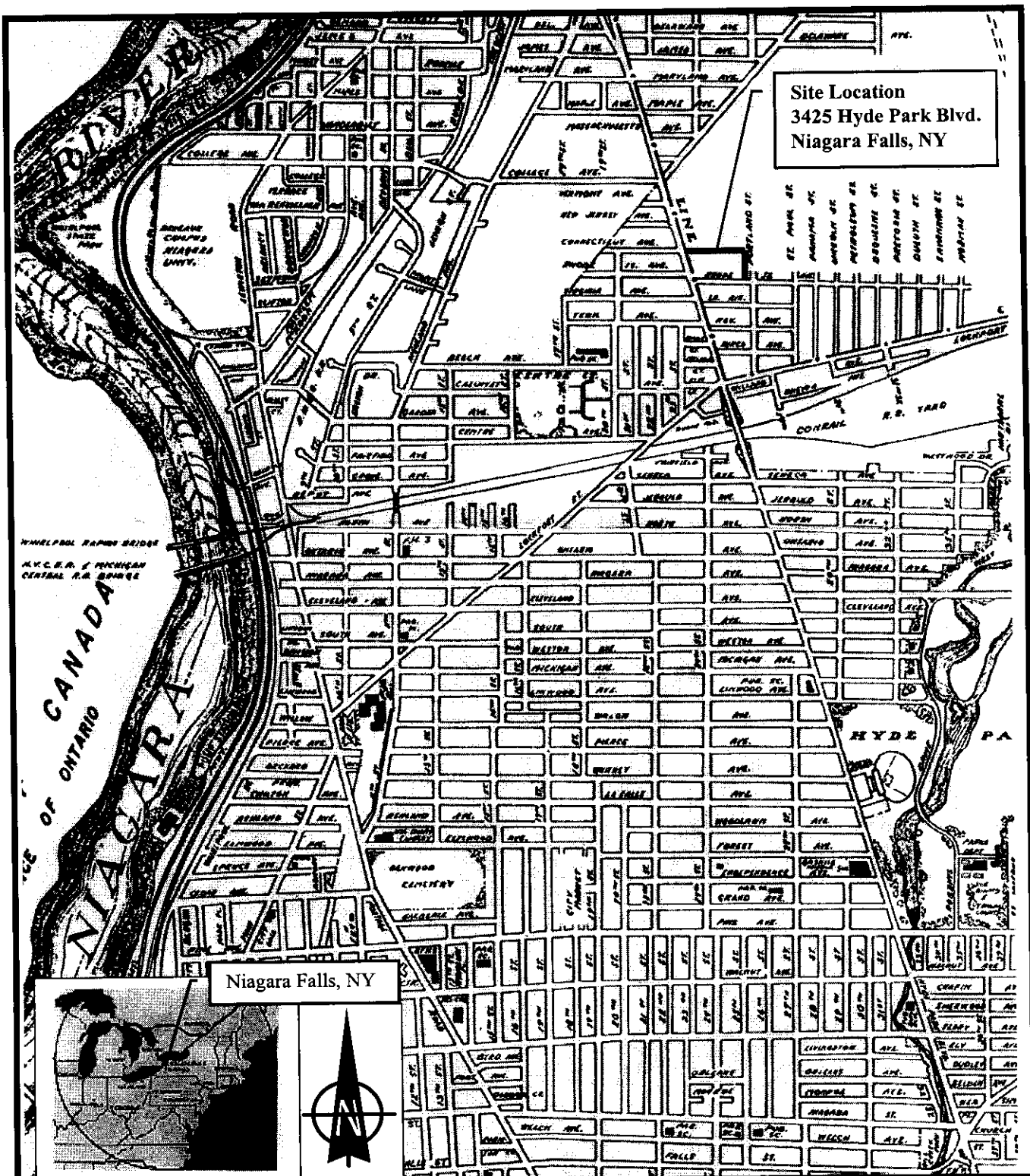
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1.3. NYSDEC "CONTAINED-IN" POLICY

The NYSDEC Division of Hazardous Substances Regulation, Bureau of Technical Support has developed a guidance document for managing listed hazardous waste. The document, Technical Administrative Guidance Memorandum #3028 dated November 30, 1992, is entitled "Contained-In" Criteria for Environmental Media (NYSDEC TAGM #3028). This contained-in policy applies to soil, sediment and groundwater contaminated by listed hazardous waste and removed pursuant to a corrective action plan. The policy states that environmental media containing hazardous constituents from listed hazardous waste can be managed as non-hazardous waste if the media contain hazardous constituent concentrations that are at or below Soil Action Level concentrations. This policy was used to manage excavated soils contaminated with VOCs at the site. Soil clean-up objectives and action level concentrations for VOCs are provided in Table 1. Soil clean-up objectives for PAHs are provided in Table 2. Soil clean-up objectives were calculated based on a technical memorandum titled "Determination of Soil Cleanup Objectives and Cleanup Levels" (NYSDEC TAGM #4046, January 24, 1994, revised March 1998). Soil cleanup objective calculations can be found in Appendix A.

Table 1. NYSDEC Soil Clean-Up Objectives and Action Level Concentrations for VOCs.

Contaminants of Concern	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	880	64,000
1,2-Dichloroethene (total)	410	2.8x10 ⁶
Acetone	200	8x10 ⁶
Vinyl Chloride	200	360
Xylenes (total)	1,680	2x10 ⁸
Ethylbenzene	7,700	8x10 ⁶
Toluene	2,100	20x10 ⁶
Methylene Chloride	150	93,000

Table 2. NYSDEC Soil Clean-Up Objectives for PAHs.

Contaminants of Concern	Clean-up Objective ($\mu\text{g/kg}$)
Acenaphthylene	57,600
Anthracene	50,000
Benzo(a)anthracene	3,860
Benzo(a)pyrene	15,400
Benzo(b)fluoranthene	1,500
Benzo(k)fluoranthene	1,500
Chrysene	560
Dibenz(a,h)anthracene	14
Fluoranthene	50,000
Fluorene	50,000
Indeno(1,2,3-cd)pyrene	4,480
Naphthalene	18,200
Phenanthrene	50,000
Pyrene	50,000

2. METHODOLOGY

2.1. SUMMARY OF RESULTS OF IRM INVESTIGATION

The IRM investigation field program included the installation of boreholes and collection of soil samples prior to excavation plan development to define the lateral and vertical extent of soils containing contaminants of concern (COCs) at concentrations that exceed:

- NYSDEC Soil Action Levels that are listed in the "Contained-In" Policy, and
- NYSDEC Soil Clean-up Objectives that were determined for the site based on the procedure described in NYSDEC TAGM HWR-94-4046, January 24, 1994.

The installation of boreholes and collection of soil samples was conducted from September 14 to 17, 1998.

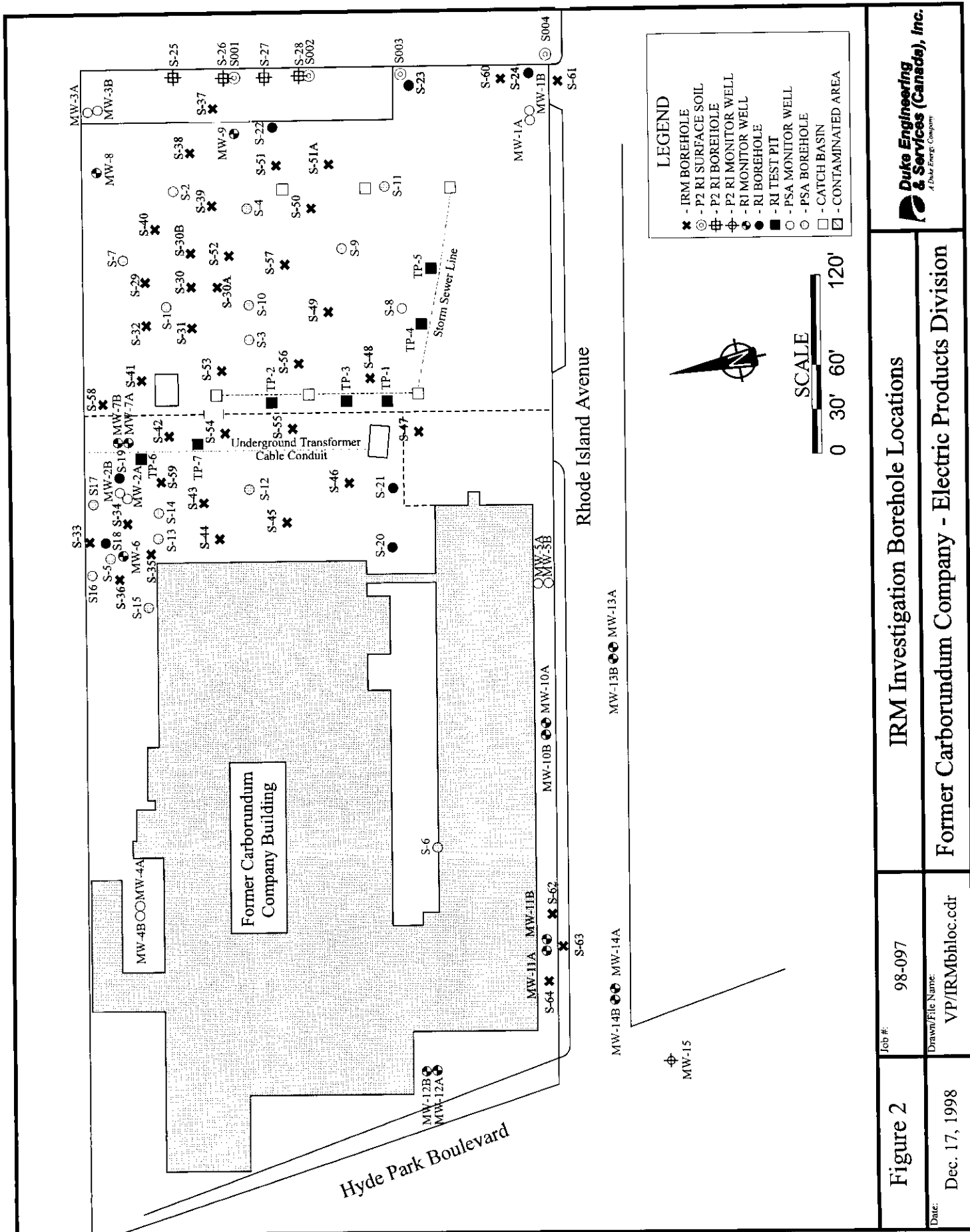
During the IRM drilling program, 39 boreholes located within the fenced area of the facility were completed to supplement previous soil sampling and to better define the lateral and vertical extent of soils containing COCs above NYSDEC Soil Clean-up Objectives. Borehole and soil sample locations are provided in Figure 2 and are numbered S-29 to S-64 (including S-30A, S-30B and S-51A).

A summary of exceedances in VOC and PAH analytical results from the PSA, RI, Phase II RI, and IRM investigation follows as Table 3 and Table 4. Based on these results, the areas and volumes of contaminated soils on-site were estimated. A table of analytical results for all soil samples collected during the PSA, RI, Phase II RI, and IRM investigation is provided in the Plans and Specifications Document for the Execution of the IRM Work Plan (DE&S, 1999).

Figure 3 identifies areas targeted for excavation, based on results of soil samples collected during the PSA, RI, Phase II RI, and IRM investigation. Excavation was divided into five general areas, identified on Figure 3 and described in Section 3. Figure 4 depicts excavation areas in the eastern portion of the site in greater detail and provides approximate depths of excavation, and estimated volumes of contaminated soil.

For more details, refer to the Plans and Specifications Document for the Execution of the IRM Work Plan.

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Table 3. Summary of Exceedances in VOC Soil Analytical Results From PSA, RI, Phase II RI, and IRM Investigation

COC	Well or Borehole No., Soil Sample Depth in ft BGS, and Concentration (µg/Kg)									Cleanup Objective (µg/Kg) ¹	Action Level (µg/Kg) ²
	MW-7B 0-2'	MW-9 12-14'	MW-11B 0.5-2'	S-1F 0.5-4'	S-3F 0-4'	S-3N 8-12'	S-4N 12-14'	S-5F 0-2'	S-10N 12-14'		
Vinyl chloride	<5.0	<1,600 ⁽³⁾	<1,300 ⁽³⁾	400 J	<12	<1,400 ⁽³⁾	<12	<1,100 ⁽³⁾	<1,400 ⁽³⁾	200	360
Methylene chloride	<5.0	<1,600 ⁽³⁾	<1,300 ⁽³⁾	<60	<12	<1,400 ⁽³⁾	1 J	<1,100 ⁽³⁾	<1,400 ⁽³⁾	150	93,000
Trichloroethene	160	<1,600 ⁽³⁾	<1,300 ⁽³⁾	300,000 J	<2 J	<1,400 ⁽³⁾	23,000	17,000	<1,400 ⁽³⁾	880	64,000
Acetone	<5.0	<1,600 ⁽³⁾	<1,300 ⁽³⁾	170	40 J	<1,400 ⁽³⁾	19 J	<1,100 ⁽³⁾	<1,400 ⁽³⁾	200	8x10 ⁶
1,2-Dichloroethene (total <i>cis</i> and <i>trans</i>)	1,100	<1,600 ⁽³⁾	<1,300 ⁽³⁾	3,300	560	<1,400 ⁽³⁾	1,700 J	560 J	<1,400 ⁽³⁾	410	2.8x10 ⁶
Toluene	150	<1,600	<1,300	84,000 J	94	<1,400 ⁽³⁾	34	<1,100	<1,400	2,100	2x10 ⁷
Ethyl benzene	210	<1,600	<1,300	90,000 J	140	1,900	120	120 J	2,400	7,700	8x10 ⁶
Total xylenes	1,610	<1,600	9,100	400,000 J	330	<1,400 ⁽³⁾	150	800 J	720 J	1,680	2x10 ⁸

Note:

1. Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).
2. Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).
3. When the sample quantitation limit is greater than the clean-up objective, the assumed COC concentration is half of the quantitation limit.

J indicates estimated value.

UJ indicates that the analyte was not detected above the sample quantitation limit and the reported quantitation limit is an estimated quantity.

Indicates that concentration exceeds recommended soil cleanup objective

Indicates that concentration exceeds recommended soil cleanup objective *and* soil action levels

Table 3. Summary of Exceedances in VOC Soil Analytical Results From PSA, RI, Phase II RI, and IRM Investigation (cont'd)

COC	Well or Borehole No., Soil Sample Depth in ft BGS, and Concentration (µg/Kg)									Cleanup Objective (µg/Kg) ¹	Action Level (µg/Kg) ²
	S-11F 2-4'	S-12F 1.5-2'	S-14N 8-10'	S-17F 0.5-4'	S-24 2-4'	S-27 10-12'	S-30 1-2'	S30A 1-2'	S33 0-2'		
Vinyl chloride	<1,300 ⁽³⁾	<1,500 ⁽³⁾	<1,400 ⁽³⁾	<1,400 ⁽³⁾	<10	3 J	<590 ⁽³⁾	<630 ⁽³⁾	<560 ⁽³⁾	200	360
Methylene chloride	<1,300 ⁽³⁾	<1,500 ⁽³⁾	<1,400 ⁽³⁾	<1,400 ⁽³⁾	<10	-	<590 ⁽³⁾	<630 ⁽³⁾	<560 ⁽³⁾	150	93,000
Trichloroethene	<1,300 ⁽³⁾	<1,500 ⁽³⁾	<1,400 ⁽³⁾	<1,400 ⁽³⁾	<10	630	<590 ⁽³⁾	9,300	14,000	880	64,000
Acetone	<1,300 ⁽³⁾	<1,500 ⁽³⁾	<1,400 ⁽³⁾	<1,400 ⁽³⁾	760	5 J	<590 ⁽³⁾	<630 ⁽³⁾	<560 ⁽³⁾	200	8x10 ⁶
1,2-Dichloroethene (total <i>cis</i> and <i>trans</i>)	<1,300 ⁽³⁾	<1,500 ⁽³⁾	380 J	<1,400 ⁽³⁾	<10	2,400	<590 ⁽³⁾	6,510	<560 ⁽³⁾	410	2.8x10 ⁶
Toluene	<1,300	300 J	<1,400	<1,400	<10	180	<590	<630	<560	2,100	2x10 ⁷
Ethyl benzene	<1,300	<1,500	<1,400	<1,400	<10	66	<590	<630	<560	7,700	8x10 ⁶
Total xylenes	<1,300	2,900	-	-	<10	220	340 J	<630	<560	1,680	2x10 ⁸

Note:

1. Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).
2. Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).
3. When the sample quantitation limit is greater than the clean-up objective, the assumed COC concentration is half of the quantitation limit.

J indicates estimated value.

UJ indicates that the analyte was not detected above the sample quantitation limit and the reported quantitation limit is an estimated quantity.

Indicates that concentration exceeds recommended soil cleanup objective

Indicates that concentration exceeds recommended soil cleanup objective *and* soil action levels

Table 3. Summary of Exceedances in VOC Soil Analytical Results From PSA, RI, Phase II RI, and IRM Investigation (cont'd)

COC	Well or Borehole No., Soil Sample Depth in ft BGS, and Concentration (µg/Kg)									Cleanup Objective (µg/Kg) ¹	Action Level (µg/Kg) ²
	S37 6-8'	S37 14-16'	S42 6-8'	S46 3-4'	S48 10-12'	S49 10-12'	S49 14-16'	S50 2-4'	S50 6-8'		
Vinyl chloride	<29	<570 ⁽³⁾	<580 ⁽³⁾	<610 ⁽³⁾	230	28	180	16 J	<610 ⁽³⁾	200	360
Methylene chloride	<29	<570 ⁽³⁾	<580 ⁽³⁾	<610 ⁽³⁾	<30	<22	<19	<22	<610 ⁽³⁾	150	93,000
Trichloroethene	930	3,300	1,500	<610	220	790	620	220	1,800	880	64,000
Acetone	<29	<570 ⁽³⁾	<580 ⁽³⁾	<610 UJ ⁽³⁾	<30	<22	24 J	<22	<610 UJ ⁽³⁾	200	8x10 ⁶
1,2-Dichloroethene (total <i>cis</i> and <i>trans</i>)	250	450 J	400 J	<610 ⁽³⁾	1,100	424	1,720	830	2,700	410	2.8x10 ⁶
Toluene	<29	<570	<580	<610	<30	<22	<19	<22	<610	2,100	2x10 ⁷
Ethyl benzene	<29	<570	<580	2,500	<30	<22	<19	<22	<610	7,700	8x10 ⁶
Total xylenes	<29	<570	<580	10,000	<30	<22	<19	<22	<610	1,680	2x10 ⁸

Note:

1. Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).
2. Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).
3. When the sample quantitation limit is greater than the clean-up objective, the assumed COC concentration is half of the quantitation limit.

J indicates estimated value.

UJ indicates that the analyte was not detected above the sample quantitation limit and the reported quantitation limit is an estimated quantity.

1,200

1,200

Indicates that concentration exceeds recommended soil cleanup objective

Indicates that concentration exceeds recommended soil cleanup objective *and* soil action levels

Table 3. Summary of Exceedances in VOC Soil Analytical Results From PSA, RI, Phase II RI, and IRM Investigation (cont'd)

COC	Well or Borehole No., Soil Sample Depth in ft BGS, and Concentration (µg/Kg)										Cleanup Objective (µg/Kg) ¹	Action Level (µg/Kg) ²
	S50 14-16'	S51 2-4'	S51 10-12'	S51 14-16'	S53 2-3'	S53 4-6'	S53 23'	S56 12'	S56 15'			
Vinyl chloride	<600 ⁽³⁾	<600 ⁽³⁾	<640 ⁽³⁾	<600 ⁽³⁾	<590 ⁽³⁾	870 J	150 J	<600 ⁽³⁾	<590 ⁽³⁾	200	360	
Methylene chloride	<600 ⁽³⁾	<600 ⁽³⁾	<640 ⁽³⁾	<600 ⁽³⁾	<590 ⁽³⁾	<1,800 ⁽³⁾	<600 ⁽³⁾	<600 ⁽³⁾	<590 ⁽³⁾	150	93,000	
Trichloroethene	850	3,500	3,600	2,400	<590	<1,800 ⁽³⁾	200 J	3,800	350 J	880	64,000	
Acetone	<600 UJ ⁽³⁾	<600 UJ ⁽³⁾	<640 UJ ⁽³⁾	<600 UJ ⁽³⁾	1,200 J	2,900 J	1,300 J	<600 UJ ⁽³⁾	<590 UJ ⁽³⁾	200	8x10 ⁶	
1,2-Dichloroethene (total <i>cis</i> and <i>trans</i>)	1,200	5,500	4,700	1,000	1,600	29,000	4,500	1,700	2,300	410	2.8x10 ⁶	
Toluene	<600	<600	<640	<600	260 J	29,000	<600	<600	<590	2,100	2x10 ⁷	
Ethyl benzene	<600	<600	<640	<600	4,100	36,000	230 J	910	590 J	7,700	8x10 ⁶	
Total xylenes	<600	<600	<640	<600	5,300	140,000	170 J	540 J	<590	1,680	2x10 ⁸	

Note:

1. Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).
2. Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).
3. When the sample quantitation limit is greater than the clean-up objective, the assumed COC concentration is half of the quantitation limit.

J indicates estimated value.

UJ indicates that the analyte was not detected above the sample quantitation limit and the reported quantitation limit is an estimated quantity.

Indicates that concentration exceeds recommended soil cleanup objective

Indicates that concentration exceeds recommended soil cleanup objective *and* soil action levels

1,200

1,200

Table 3. Summary of Exceedances in VOC Soil Analytical Results From PSA, RI, Phase II RI, and IRM Investigation (cont'd)

COC	Well or Borehole No., Soil Sample Depth in ft BGS, and Concentration ($\mu\text{g/Kg}$)		Cleanup Objective ($\mu\text{g/Kg}$) ¹	Action Level ($\mu\text{g/Kg}$) ²
	S57	14-16'		
Vinyl chloride	62		200	360
Methylene chloride	<16		150	93,000
Trichloroethene	28		880	64,000
Acetone	30J		200	8×10^6
1,2-Dichloroethene (total <i>cis</i> and <i>trans</i>)	640		410	2.8×10^6
Toluene	<16		2,100	2×10^7
Ethyl benzene	<16		7,700	8×10^6
Total xylenes	<16		1,680	2×10^8

Note:

1. Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).
2. Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).
3. When the sample quantitation limit is greater than the clean-up objective, the assumed COC concentration is half of the quantitation limit.
 - J indicates estimated value.
 - UJ indicates that the analyte was not detected above the sample quantitation limit and the reported quantitation limit is an estimated quantity.



Indicates that concentration exceeds recommended soil cleanup objective

Indicates that concentration exceeds recommended soil cleanup objective *and* soil action levels

Table 4. Summary of Exceedances in PAH Soil Analytical Results From PSA, RI, Phase II RI, and IRM Investigation

COC	Well or Borehole No., Soil Sample Depth in ft BGS, and Concentration (µg/Kg)						Cleanup Objective (µg/Kg) ¹
	MW-6 0-2'	S-5 0-2'	S-18 0-2'	S-33 0-2'	S-34 0-2'	S-36 0-2'	
Acenaphthylene	<300	2,600	<3,000	1,200 J	<14,000 UJ	770 J	57,600
Anthracene	2,000	5,200 J	33,000	17,000 J	12,000 J	17,000 J	50,000
Benzo(a)anthracene	6,900	14,000 J	22,000	36,000	26,000	35,000	3,860
Benzo(a)pyrene	<1,500	11,000 J	<15,000	31,000 J	26,000 J	41,000 J	15,400
Benzo(b)fluoranthene	<300	24,000 J	<3,000 ⁽²⁾	N/A	N/A	N/A	1,500
Benzo(k)fluoranthene	<300	6,700 J	<3,000 ⁽²⁾	N/A	N/A	N/A	1,500
Benzo(b/k)fluoranthene	N/A	N/A	N/A	N/A	N/A	N/A	1,500
Chrysene	10,000	12,000 J	37,000	36,000 J	27,000 J	36,000 J	560
Fluoranthene	-	27,000 J	37,000	36,000 J	27,000 J	36,000 J	50,000
Fluorene	720	4,900 J	5,100	7,400 J	3,500 J	66,000 J	50,000
Indeno(1,2,3-cd)pyrene	<1,500	6,400 J	215,000 ⁽²⁾	27,000	18,000	29,000	4,480
Naphthalene	340	4,300 J	3,900	6,500 J	2,100 J	12,000 J	18,200
Phenanthrene	7,500	28,000 J	<3,000	56,000 J	38,000 J	49,000 J	50,000
Pyrene	17,000	23,000 J	35,000	83,000 J	58,000 J	76,000 J	50,000

Note:

1. Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).
2. When the sample quantitation limit is greater than the clean-up objective, the assumed COC concentration is half of the quantitation limit.
J indicates estimated value.
UJ indicates that the analyte was not detected above the sample quantitation limit and the reported quantitation limit is an estimated quantity.

Indicates that concentration exceeds recommended soil cleanup objective

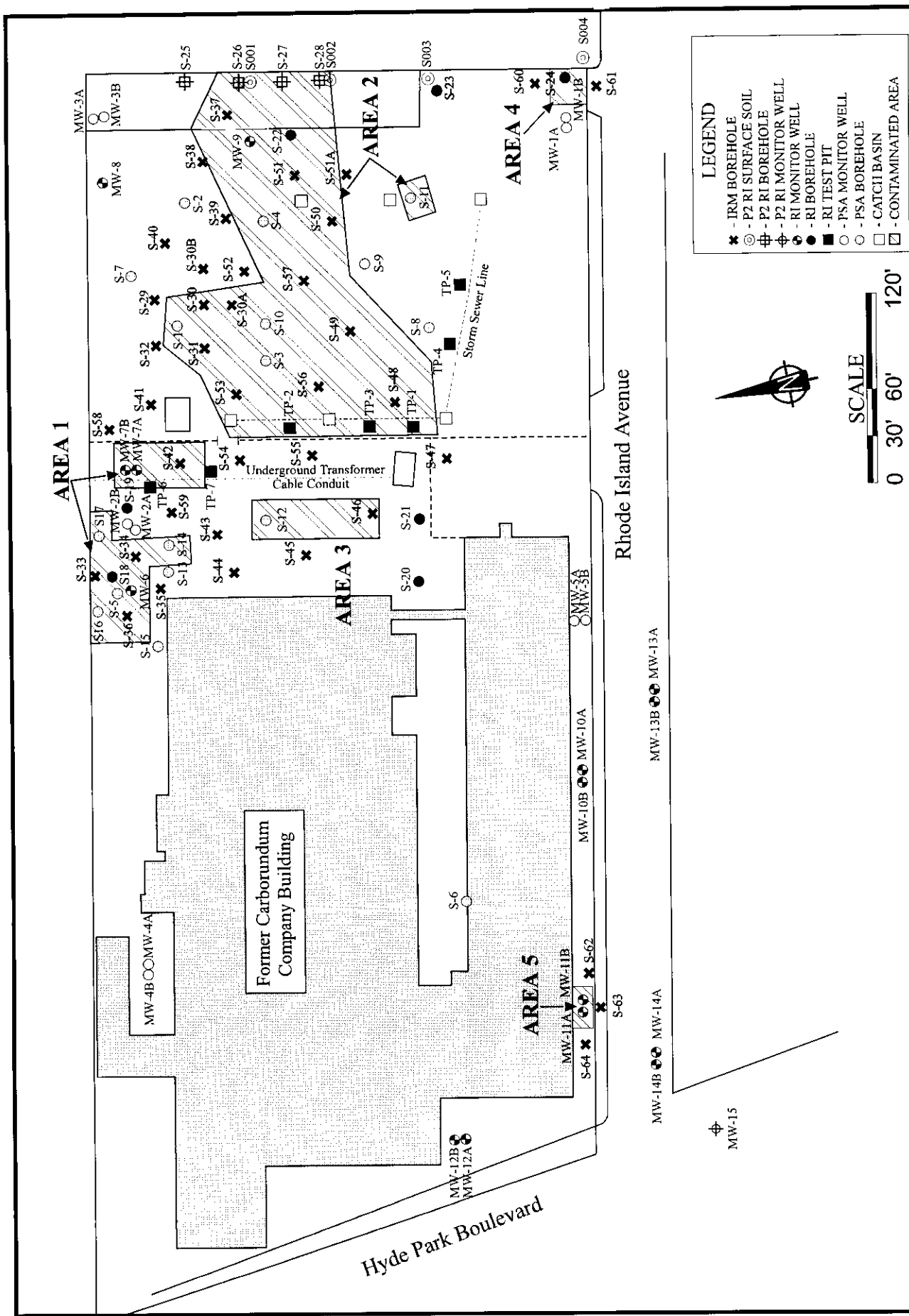


Figure 3	Job #:	98-097	Areas Targeted for Excavation
Date:	Nov. 25, 1998	Drawn/File Name:	
		VP/exloc097.cdr	Former Carborundum Company - Electric Products Division

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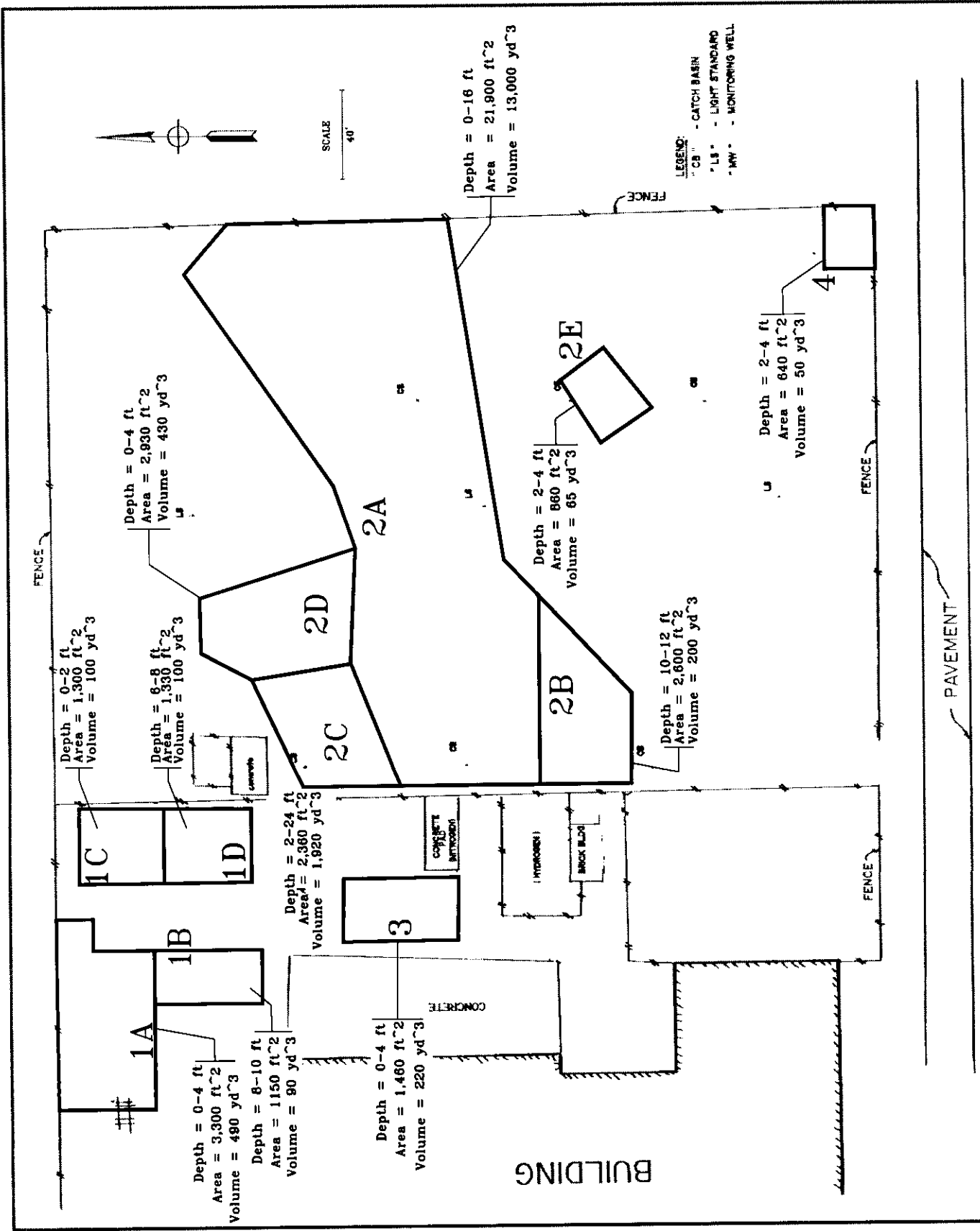


Figure 4	Project #: TM8097	Areas Targeted for Excavation in East Portion of Site
Date: April, 1999	Drawn/File Name: msm/Excavat	Former Carborundum Company - Electric Products Division

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2.2. AIR DISPERSION MODELING

An air dispersion model was constructed to evaluate the potential impact of excavation activities on employees currently working at the former Carborundum Company Facility, and to the general public in the vicinity of the site. In addition, the air model was used to help develop a work plan to minimize potential air impacts during execution of the IRM. Concerns for potential emission or volatilization of contaminants into the air during excavation and removal of contaminated soil were evaluated by using the air model to simulate excavation conditions at the site. This simulation was constructed to mimic site weather, wind pattern, and contaminant concentrations in soil as closely as possible. Details on air modeling are provided in Appendix B.

The results of the air modeling indicate that emission of contaminants from the site during excavation could be significantly reduced if stockpiling of contaminated soils on site could be eliminated or reduced. This would eliminate the emission of vapors from stockpiled soil.

Based on the air modeling work, a pre-characterization test pit sampling program was proposed. This pre-characterization of soils would allow the excavation and direct loading of soils into trucks for off-site disposal.

2.3. PRE-CHARACTERIZATION TEST PIT SAMPLING

A test pit sampling program was conducted in April 1999. The purpose of the test pit sampling was to pre-characterize soils for disposal purposes. This pre-characterization allowed the excavation of soils directly on to trucks to be hauled off-site to an appropriate disposal facility. Results of the test pit sampling were documented in a letter entitled "*Test Pit Sampling Results, Former Carborundum Global Facility, Site #932036, Town of Niagara, NY*" dated May 4, 1999 addressed to Modern Corporation and submitted to the NYSDEC.

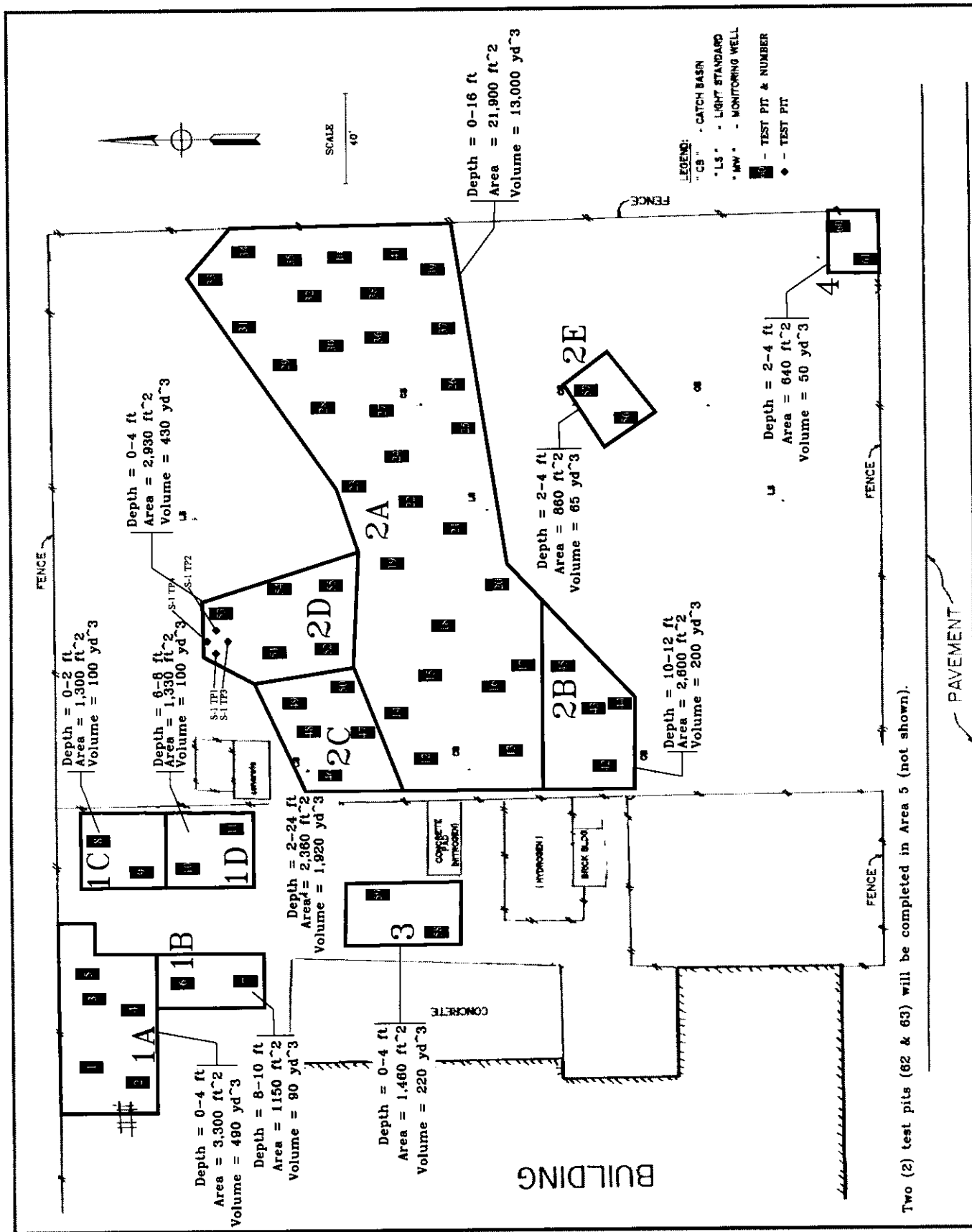
The remainder of this section presents the methodology used in the test pit sampling program, results of the sampling, and the approach to excavation and disposal of contaminated soils from the site.

2.3.1 Rationale and Methodology

A total of 67 test pits were installed on April 16, 19, and 20 in locations indicated on Figure 5. Test pits were spatially located within planned excavation areas at a frequency of approximately one per 800 ft² area. At least two test pits were located in each subarea. Test pits were located so that they did not overlap previous sampling locations in order to identify any unknown localized zones of contamination.

A soil sample was collected from each test pit. This soil sample was a composite over the vertical extent of contamination. No known clean soils were included in test pit samples. Soil samples from each test pit were composited with those from other test pits as necessary so that each soil sample submitted for laboratory analysis represented approximately 1000 yd³ of soil. A minimum of one composite soil sample was submitted from each subarea.

Table 5 provides a breakdown of test pits, composite soil samples, and analyses for each subarea. Samples were analyzed using the Toxic Characteristic Leachate Procedure (TCLP) for compounds on the toxicity characteristic list from NYCRR Part 371, Section 371.3(e), ignitability, corrosivity, and reactivity at a frequency of approximately one per 2,000 yd³ of soil. All of the soil samples submitted for TCLP testing were split and submitted for total VOCs analysis as well. Additional testing was conducted in areas of potentially clean backfill, in areas where vinyl chloride concentrations were not well defined, and in areas where high photo ionization detector (PID) readings or field observations indicated that contamination may be present. Table 6 provides a breakdown of additional sampling that was conducted. Results of the sampling program are presented below. Laboratory analytical reports are provided in Appendix C.



Two (2) test pits (62 & 63) will be completed in Area 5 (not shown).

Figure 5	Project # TM8097	Location of Test Pits for Sampling Prior to Excavation
Date: April, 1999	Drawn/Title Name: msm/Excavat	Former Carborundum Company - Electric Products Division

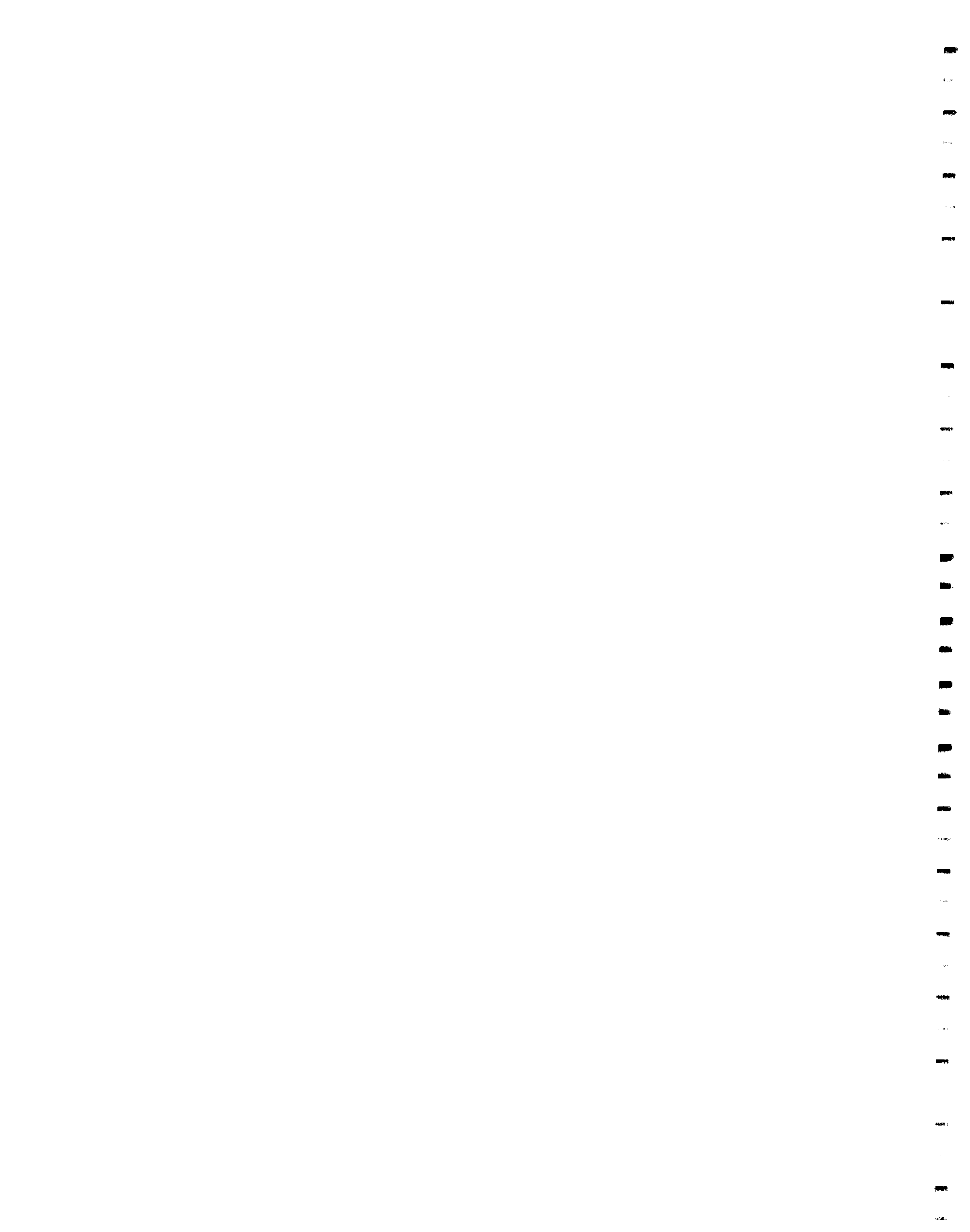


Table 5. Sampling Plan to Pre-characterize Non-hazardous Soils for Disposal

Area	Depth of Contamination	Number of Test Pits	Number of Composite Samples	Volume (yd ³) Represented	Tonnage* Represented	Analyses Required**		
						I	II	III
1A	0 to 4 ft	5	1	490	882	1		1
1B	8 to 10 ft	2	1	90	162	1	1	
1C	0 to 2 ft	2	1	100	180	1	1	
1D	6 to 8 ft	2	1	100	180	1	1	
2A	0 to 16 ft	30	19	13,000	23,400	19	5	
2B	10 to 12 ft	4	1	200	360	1	1	
2C	2 to 24 ft	5	2	1920	3,456	2	2	
2D	0 to 4 ft	5	1	430	774	1	1	
2E	2 to 4 ft	2	1	65	117	1	1	
3	0 to 4 ft	2	1	220	396	1	1	
4	2 to 4 ft	2	1	50	90	1	1	
5	0 to 2 ft	2	1	30	54	1	1	
TOTALS		63	31	16,695	30,051	31	16	1

* Assume density of 1.8 tons/yd³

** Analyses:

I – soil analyzed for total VOCs

II – leachate analyzed for parameters listed in 6 NYCRR Part 371, Section 371.3 (e) Table 1, soil analyzed for ignitability, reactivity, corrosivity

III – leachate analyzed for VOCs and PAHs, soil analyzed for ignitability

Table 6. Summary of Additional Sampling and Rationale

Area	Depth of Contamination	Test Pits	Sample ID	Analyses Conducted	Rationale
2D	0 to 4 ft	S1-TP1	S1-TP1	Total VOCs	To delineate extent of action level soils around borehole S-1
	0 to 4 ft	S1-TP2	S1-TP2	Total VOCs	To delineate extent of action level soils around borehole S-1
	0 to 4 ft	S1-TP3	S1-TP3	Total VOCs	To delineate extent of action level soils around borehole S-1
	0 to 4 ft	S1-TP4	S1-TP4	Total VOCs	To delineate extent of action level soils around borehole S-1
1B	0 to 8 ft	TP6-7	PCTP-S004	Total VOCs	Pre-characterization of clean overburden
1D	0 to 6 ft	TP10-11	PCTP-S009	Total VOCs	Pre-characterization of clean overburden
2E	0 to 2 ft	TP56-57	PCTP-S030	Total VOCs	Pre-characterization of clean overburden
2B	0 to 5 ft	TP42-45	PCTP-S031	Total VOCs	Pre-characterization of clean overburden
	5 to 10 ft	TP42-45	PCTP-S037	Total VOCs	Pre-characterization of clean overburden
2A	10 to 12 ft	TP36	PCTP-S047	Total VOCs	Discrete sample due to high PID reading and odour
2B	10 to 12 ft	TP44	PCTP-S048	Total VOCs	Discrete sample to try and delineate clean boundaries of Area 2B
	10 to 12 ft	TP42	PCTP-S049	Total VOCs	Discrete sample to try and delineate clean boundaries of Area 2B
	4 to 6 ft	TP49	PCTP-S050	Total VOCs	Discrete sample to try and delineate action level soils in Area 2C
	4 to 6 ft	TP48	PCTP-S051	Total VOCs	Discrete sample due to high PID reading and odour
2C	6 to 8 ft	TP48	PCTP-S052	Total VOCs	Discrete sample due to high PID reading, strong odour and heavy staining
	4 to 6 ft	TP47	PCTP-S053	Total VOCs	Discrete sample to try and delineate action level soils in Area 2C
	4 to 6 ft	TP50	PCTP-S054	Total VOCs	Discrete sample to try and delineate action level soils in Area 2C
	0 to 4 ft	TP1-2	PCTP-S002	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
1A	0 to 4 ft	TP3-5	PCTP-S003	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
	8 to 10 ft	TP6-7	PCTP-S006	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
1B	8 to 10 ft	TP7	PCTP-S007	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
3	0 to 4 ft	TP58	PCTP-S034	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
	0 to 4 ft	TP59	PCTP-S035	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
2E	2 to 4 ft	TP56	PCTP-S039	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
	2 to 4 ft	TP57	PCTP-S040	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
5	0 to 2 ft	TP62	PCTP-S045	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling
	0 to 2 ft	TP63	PCTP-S046	Vinyl Chloride	Alleviate dilution problem encountered during previous sampling

TP = test pit. PCTP = pre-characterization test pit sample.

2.3.2 Characterization of Soils for Disposal

TCLP and VOCs results are presented in Table 7 and Table 8, respectively. Two samples contained concentrations that exceeded the maximum concentration listed in NYCRR Part 371. These two samples were collected from Area 2D from a depth of 0 to 4 feet below ground surface and from Area 5 from 0 to 2 feet. The composite soil sample from Area 2D contained trichloroethene in leachate at a concentration of 860 µg/L, which exceeds the maximum NYCRR Part 371 concentration of 500 µg/L. Soils from Area 2D were therefore identified for disposal in a RCRA Part 373 landfill.

The sample collected from Area 5 contained lead in leachate at a concentration of 9,420 µg/L, which exceeds the maximum NYCRR Part 371 concentration of 5,000 µg/L. Soils from Area 5 were therefore identified for disposal in a RCRA Part 373 landfill.

Soils characterized by the remaining samples were considered non-hazardous and identified for disposal in a RCRA Part 360 landfill.

Table 7. - Pre-characterization Test Pit Sampling TCLP Testing Results

COC ²	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/L) ¹								Maximum Concentration ³
	AREA 1A	AREA 1B	AREA 1C	AREA 1D	AREA 2A				
	PCTP-S001 TP1-5 0-4'	PCTP-S005 TP6-7 8-10'	PCTP-S008 TP8-9 0-2'	PCTP-S010 TP10-11 6-8'	PCTP-S011 TP12-17 0-16'	PCTP-S015 TP18-21 0-16'	PCTP-S018 TP22-28 0-16'	PCTP-S022 TP29-35 0-16'	
Trichloroethene	200 U	200 U	200 U	28 J	190 J	200 U	39 J	34 J	500
Arsenic	NA	159 U	159 U	1,590 U	23.4	13.0	159 U	1,590 U	5,000
Barium	NA	91.8 B	38.7 B	730 B	140 B	657	29.7 B	488 B	100,000
Cadmium	NA	2.9 U	2.9 U	29.0 U	0.2 U	0.6 U	2.9 U	29.0 U	1,000
Chromium	NA	6.7 U	13.6	67.0 U	0.6 U	1.8 U	6.7 U	67.0 UN	5,000
Lead	NA	187 U	187 U	1,870 U	6.7	52.2	187 U	1,870 U	5,000
Mercury	NA	0.2 U	0.68	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	200
Selenium	NA	16.6 B	37.3	8.0U W	316 U	632 U	316 U	8.0U WE	1,000
Silver	NA	3.8 U	3.8 U	38.0 U	1.2 U	3.6 U	3.8 U	38.0 U	5,000
Flash Point	>200 F	>200 F	>200 F	>200 F	>200 F	>200 F	>200 F	>200 F	-
Reactivity ⁴	NA	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	-
pH ⁴	NA	7.1	7.1	6.9	7.1	7.1	7.4	7.1	-

860 - Shaded areas indicate that concentration exceeds the maximum concentration

1 - units are µg/L unless otherwise noted

2 - No detection's for herbicides, pesticides, semi-volatiles, PAHs nor COCs other than trichloroethene were detected

3 - from NYCRR Part 371 Identification of Hazardous Waste

4 - no units

B - The reported value is less than the Contract Required Detection Limit (CRDL), but greater than the Instrument Detection Limit (IDL).

E - Indicates an estimated value because of the presence of interference.

F - degrees Fahrenheit

J - Indicates an estimated value.

N - Spike sample recovery not within control limits.

NA - not analyzed

U - Indicates that the analyte/compound was not detected above the detection limit indicated.

W - Post digestion spike for furnace AA analysis is out of control limits (85-115%), while sample absorbency is less than 50% of spike absorbance.

Table 7 - Pre-characterization Test Pit Sampling TCLP Testing Results (cont'd)

COC ²	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/L) ¹									Maximum Concentration ³
	AREA 2A	AREA 2B	AREA 2C	AREA 2D	AREA 2E	AREA 3	AREA 4	AREA 5		
	PCTP-S026 2A, TP36-41 0-16'	PCTP-S032 2B, TP42-45 10-12'	PCTP-S041 2C, TP46-50 2-20'	PCTP-S036 2D, TP51-55 0-4'	PCTP-S038 2E, TP56-57 2-4'	PCTP-S033 3, TP58-59 0-4'	PCTP-S043 4, TP60-61 2-4'	PCTP-S044 5, TP62-63 0-2'		
Trichloroethene	200 U	44 J	29 J		200 U	200 U	200 U	200 U	500	
Arsenic	159 U	159 U	159 U	1,590 U	159 U	159 U	159 U	159 U	5,000	
Barium	264	419	93.3 B	647 B	309	38.8 B	199 B	61.3 B	100,000	
Cadmium	2.9 U	2.9 U	2.9 U	29.0 U	2.9 U	2.9 U	2.9 U	2.9 U	1,000	
Chromium	6.7 U	6.7 U	6.7 U	67.0 U	6.7 U	8.3 B	6.7 U	6.7 U	5,000	
Lead	187 U	187 U	187 U	1,870 U	187 U	187 U	187 U	9,420	5,000	
Mercury	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	200	
Selenium	316 U	316 U	316 U	8.0 UW	316 U	16.9 B	316 U	316 U	1,000	
Silver	3.8 U	2.8 U	3.8 U	38.0 U	3.8 U	3.8 U	3.8 U	3.8 U	5,000	
Flash Point	>200 F	>200 F	>200 F	>200 F	>200 F	>200 F	>200 F	>200 F	-	
Reactivity ⁴	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	NOT REACT.	-	
pH ⁴	7.2	6.9	7.1	6.8	7.0	7.2	7.1	9.0	-	

350 - Shaded areas indicate that concentration exceeds the maximum concentration

¹ - units are µg/L unless otherwise noted

² - No detection's for herbicides, pesticides, semi-volatiles, PAHs nor COCs other than trichloroethene were detected

³ - from NYCRR Part 371 Identification of Hazardous Waste

⁴ - no units

B - The reported value is less than the Contract Required Detection Limit (CRDL), but greater than the Instrument Detection Limit (IDL).

E - Indicates an estimated value because of the presence of interference.

F - degrees Fahrenheit

J - Indicates an estimated value.

N - Spike sample recovery not within control limits.

NA - not analyzed

U - Indicates that the analyte/compound was not detected above the detection limit indicated.

W - Post digestion spike for furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.

Table 8. VOC Analytical Results for Composite Soil Samples

COC	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/kg)									Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ²
	AREA 1A		AREA 1B			AREA 1C		AREA 1D			
	PCTP-S001 TP1-5 0-4'	PCTP-S002 TP1-2 0-4'	PCTP-S003 TP3-5 0-4'	PCTP-S005 TP6-7 8-10'	PCTP-S006 TP6 8-10'	PCTP-S007 TP7 8-10'	PCTP-S008 TP8-9 0-2'	PCTP-S010 TP10-11 6-8'			
Vinyl chloride	12 U	150 U	150 U	12 U	150 U	140 U	12 U	16 J	200	360	
Methylene chloride	2 J	NA	NA	5 J	NA	NA	12 U	67 U	150	93,000	
Acetone	13 B	NA	NA	12 B	NA	NA	22 B	29 JB	200	8x10 ⁶	
1,2-Dichloroethene (total cis and trans)	3 J	NA	NA	17	NA	NA	5 J	810	410	2.8x10 ⁶	
Trichloroethene	44	NA	NA	22	NA	NA	97	880	880	64,000	
Toluene	12 U	NA	NA	12 U	NA	NA	12 U	330	2,100	20x10 ⁶	
Ethylbenzene	12 U	NA	NA	12 U	NA	NA	12 U	1,200 D	7,700	8x10 ⁶	
Xylenes (total)	12 U	NA	NA	12 U	NA	NA	12 U	5,400 D	1,680	2x10 ⁸	

Shaded areas denote COC exceedance of the Cleanup Objective

- ¹ - Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).
² - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).

B - Indicates that the analyte was found in both the sample and its associated laboratory blank.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

J - Indicates an estimated value.

NA - not analyzed

U - Indicates that the compound was not detected above the detection limit indicated.

Table 8 - VOC Analytical Results for Composite Soil Samples (cont'd)

COC	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/kg)								Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ²
	AREA 2A									
	PCTP-S011 TP12-17 0-16'	PCTP-S012 TP12-13 0-16'	PCTP-S013 TP14-15 0-16'	PCTP-S014 TP16-17 0-16'	PCTP-S015 TP18-21 0-16'	PCTP-S016 TP18-19 0-16'	PCTP-S017 TP20-21 0-16'	PCTP-S018 TP22-28 0-16'		
Vinyl chloride	24	27	18	16	4 J	12 U	4 J	3 J	200	360
Methylene chloride	13 U	12 U	12 U	12 U	12 U	12 U	12 U	11 U	150	93,000
Acetone	13	33	8 J	16	9 J	3 J	10 J	5 J	200	8x10 ⁶
1,2-Dichloroethene (total cis and trans)	190 JD	150	230	420 JD	120	19	190	140	410	2.8x10 ⁶
Trichloroethene	1,500 JD	110	690 D	3,300 D	120	52	520 D	150	880	64,000
Toluene	2 J	2 J	1 J	4 J	12 U	12 U	12 U	11 U	2,100	20x10 ⁶
Ethylbenzene	17	62	1 J	12 U	12 U	12 U	12 U	11 U	7,700	8x10 ⁶
Xylenes (total)	10 J	25	12 U	6 J	12 U	12 U	12 U	11 U	1,680	2x10 ⁸

810 - Shaded areas denote COC exceedance of the Cleanup Objective

¹ - Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).

² - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).

B - Indicates that the analyte was found in both the sample and its associated laboratory blank.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

J - Indicates an estimated value.

NA - not analyzed

U - Indicates that the compound was not detected above the detection limit indicated.

Table 8 - VOC Analytical Results for Composite Soil Samples (cont'd)

COC	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/kg)								Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ²
	AREA 2A									
	PCTP-S019 TP22-24 0-16'	PCTP-S020 TP25-26 0-16'	PCTP-S021 TP27-28 0-16'	PCTP-S022 TP29-35 0-16'	PCTP-S023 TP29-30 0-16'	PCTP-S024 TP31-32 0-16'	PCTP-S025 TP33-35 0-16'	PCTP-S026 TP36-41 0-16'		
Vinyl chloride	8 J	10 J	9 J	12 U	12 U	12 U	12 U	12 U	200	360
Methylene chloride	12 U	12 U	12 U	12 U	12 U	12 U	12 U	12 U	150	93,000
Acetone	9 J	4 J	12 J	15	11 J	16	20	11 J	200	8x10 ⁶
1,2-Dichloroethene (total cis and trans)	490 D	410 D	1,400 JD	94	260 D	130	18	140	410	2.8x10 ⁶
Trichloroethene	950 D	310 D	160	260 D	280 D	200	360 D	78	880	64,000
Toluene	12 U	12 U	13	6 J	19	25	12 U	9 J	2,100	20x10 ⁶
Ethylbenzene	12 U	12 U	67	5 J	42	14	12 U	13	7,700	8x10 ⁶
Xylenes (total)	12 U	12 U	70	14	61	60	12 U	40	1,680	2x10 ⁸

810 - Shaded areas denote COC exceedance of the Cleanup Objective

¹ - Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).

² - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).

B - Indicates that the analyte was found in both the sample and its associated laboratory blank.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

J - Indicates an estimated value.

NA - not analyzed

U - Indicates that the compound was not detected above the detection limit indicated.

Table 8 - VOC Analytical Results for Composite Soil Samples (cont'd)

COC	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/kg)								Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ²
	AREA 2A		AREA 2B		AREA 2C		AREA 2D			
	PCTP-S027 TP36-37 0-16'	PCTP-S028 TP38-39 0-16'	PCTP-S029 TP40-41 0-16'	PCTP-S032 TP42-45 10-12'	PCTP-S041 TP46-50 2-20'	PCTP-S036 TP51-55 0-4'	PCTP-S038 TP56-57 2-4'	PCTP-S039 TP56 2-4'		
Vinyl chloride	4 J	16 J	25 U	29	72	61 U	12 U	150 U	200	360
Methylene chloride	12 U	62 U	25 U	13 U	23 U	11 J	12 U	NA	150	93,000
Acetone	8 J	18 J	50	17	23	110	6 J	NA	200	8x10 ⁶
1,2-Dichloroethene (total cis and trans)	250 D						12 U	NA	410	2.8x10 ⁶
Trichloroethene	590 D	640	280		520 D		1 J	NA	880	64,000
Toluene	6 J	130	57	13 U	47		12 U	NA	2,100	20x10 ⁶
Ethylbenzene	10 J	83	95	13 U	88		12 U	NA	7,700	8x10 ⁶
Xylenes (total)	7 J	200	210	13 U	140		12 U	NA	1,680	2x10 ⁸

8097 - Shaded areas denote COC exceedance of the Cleanup Objective

¹ - Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).

² - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).

B - Indicates that the analyte was found in both the sample and its associated laboratory blank.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

J - Indicates an estimated value.

NA - not analyzed

U - Indicates that the compound was not detected above the detection limit indicated.

Table 8 - VOC Analytical Results for Composite Soil Samples (cont'd)

COC	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/kg)										Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ²
	AREA 2E		AREA 3			AREA 4		AREA 5				
	PCTP-S040 TP57 2-4'	PCTP-S033 TP58-59 0-4'	PCTP-S034 TP58 0-4'	PCTP-S035 TP59 0-4'	PCTP-S043 TP60-61 2-4'	PCTP-S044 TP62-63 0-2'	PCTP-S045 TP62 0-2'	PCTP-S046 TP63 0-2'				
Vinyl chloride	180 U	12 U	160 U	150 U	12 U	12 U	140 U	140 U	200	360		
Methylene chloride	NA	5 J	NA	NA	12 U	12 U	NA	NA	150	93,000		
Acetone	NA	22	NA	NA	180	29	NA	NA	200	8x10 ⁶		
1,2-Dichloroethene (total cis and trans)	NA	5 J	NA	NA	12 U	2 J	NA	NA	410	2.8x10 ⁶		
Trichloroethene	NA	32	NA	NA	2 J	6 J	NA	NA	880	64,000		
Toluene	NA	12 U	NA	NA	12 U	6 J	NA	NA	2,100	20x10 ⁶		
Ethylbenzene	NA	12 U	NA	NA	12 U	5 J	NA	NA	7,700	8x10 ⁶		
Xylenes (total)	NA	12 U	NA	NA	12 U	130	NA	NA	1,680	2x10 ⁸		

- Shaded areas denote COC exceedance of the Cleanup Objective

- Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).

2 - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).

B - Indicates that the analyte was found in both the sample and its associated laboratory blank.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

J - Indicates an estimated value.

NA - not analyzed

U - Indicates that the compound was not detected above the detection limit indicated.

Table 8 - VOC Analytical Results for Composite Soil Samples (cont'd)

COC	Sample ID, Area, Depth of Contamination, and Concentration (µg/kg)				Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ²
	AREA 2D					
	S1-TP1 0-4'	S1-TP2 0-4'	S1-TP3 0-4'	S1-TP4 0-4'		
Vinyl chloride	12 U	16 J	8 J	12 U	200	360
Methylene chloride	12 U	3 J	3 J	3 J	150	93,000
Acetone	49	210	200	6 J	200	8x10 ⁶
1,2-Dichloroethene (total cis and trans)	85	1,000 D	370 D	48	410	2.8x10 ⁶
Trichloroethene	28	250	240 D	13	880	64,000
Toluene	12 U	4 J	210 D	12 U	2,100	20x10 ⁶
Ethylbenzene	12 U	25 U	220	12 U	7,700	8x10 ⁶
Xylenes (total)	12 U	2 J	450 D	12 U	1,680	2x10 ⁸

810

- Shaded areas denote COC exceedance of the Cleanup Objective

¹ - Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).² - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).

B - Indicates that the analyte was found in both the sample and its associated laboratory blank.

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

J - Indicates an estimated value.

NA - not analyzed

U - Indicates that the compound was not detected above the detection limit indicated.

2.3.3 Pre-Characterization of Clean Overburden

Composite samples were collected in areas where clean soils were believed to be overlying contaminated soils in areas 1B, 1D, 2B, and 4. These composite samples (samples *PCTP-S004*, *PCTP-S009*, *PCTP-S030*, *PCTP-S031*, *PCTP-S037* and *PCTP-S042*) were submitted for total VOCs analysis in order to determine if the overburden soil is acceptable for use as clean backfill on the site. Clean overburden samples were collected at a frequency of 1 per 200 tons and with a minimum of two test pits per composite sample. Results of these samples are presented in Table 9. Concentrations of VOCs in all the clean overburden samples were well below the NYSDEC soil cleanup objectives. Therefore, overburden soil from Areas 1B, 1D, and 2B was identified as clean backfill.

Table 9. VOC Analytical Results from Pre-characterization of Clean Overburden.

COC	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/kg)				Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ²
	AREA 1B	AREA 1D	AREA 2B	AREA 4		
	PCTP-S004 1B, TP6-7 0-8'	PCTP-S009 1D, TP10-11 0-6'	PCTP-S030 2B, TP42-45 0-5'	PCTP-S031 2B, TP42-45 5-10'	PCTP-S042 4, TP60-61 0-2'	
Vinyl chloride	12U	12U	12U	6J	NS	200
Methylene chloride	1J	12U	12U	13U	NS	150
Acetone	11JB	16B	28	8J	NS	200
1,2-Dichloroethene (total cis and trans)	4J	5J	10J	79	NS	410
Trichloroethene	3J	13	12U	48	NS	880
Toluene	12U	12U	12U	13U	NS	2,100
Ethylbenzene	12U	3J	12U	13U	NS	7,700
Xylenes (total)	12U	12U	12U	13U	NS	1,680
						2x10 ⁶

¹ - Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NSYDEC TAGM HWR-94-4046, January 24, 1994)

² - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992)

B - Indicates that the analyte was found in both the sample and its associated laboratory blank.

J - Indicates an estimated value.

NS - Not sampled because only gravel was present from 0-2 ft in TP60 and TP61.

U - Indicates that the compound was not detected above the detection limit indicated.

2.3.4 Sampling for Vinyl Chloride

High concentrations of contaminants in soil samples collected during the PSA and RI from areas 1A, 1B, 2E, 3 and 5 resulted in dilution of the samples during laboratory analysis. Because of this dilution, detection limits reported for vinyl chloride were above the soil clean-up objective and/or action level. In an effort to clarify whether vinyl chloride was actually a concern in these areas, two soil samples were collected from each of areas 1A, 1B, 2E, 3 and 5 during test pit sampling. These ten soil samples (*PCTP-S002*, *PCTP-S003*, *PCTP-S006*, *PCTP-S034*, *PCTP-S035*, *PCTP-S039*, *PCTP-S040*, *PCTP-S045* and *PCTP-S046*) were analyzed for vinyl chloride only to alleviate the dilution problem and determine appropriate disposal options for affected soils. Vinyl chloride concentrations in all ten samples were non-detectable. The detection limits ranged between 140 and 180 µg/kg, which are below the soil clean up objective and soil action level for vinyl chloride. These results allowed soils to be identified for disposal in a RCRA Part 360 landfill.

The analytical results for samples from test pits 56 and 57 in Area 2E indicated that this area could be significantly reduced in size. The results presented in Table 10 indicate that the average concentrations of contaminants in the soil to be excavated do not exceed soil action levels or 10 times the Land Disposal Restriction (LDR) concentrations. These soils were therefore identified for disposal in a RCRA Part 360 landfill. Areas 2D and 5 were not included in Table 10 because soils from these areas exceed NYCRR Part 371 maximum concentrations and therefore will be disposed in a RCRA Part 373 landfill.

2.3.5 Discrete Sampling for VOCs

Additional sampling included discrete soil sampling for total VOCs analysis. Discrete samples were collected when obvious locations of staining, odor and/or elevated PID readings were noted (samples *PCTP-S047* and *PCTP-S052*). Samples were also collected in Area 2B, where DE&S field personnel determined that discrete samples might allow a reduction in excavation area (*PCTP-S048* and *PCTP-S049*). Discrete samples were also collected in Area 2C around borehole S-53 where action level soils have been identified (*PCTP-S050* to *PCTP-S054*). The laboratory analytical results for discrete soil samples are presented in Table 11. The concentrations in Table 11 are included in the calculation of average contaminant concentrations presented in Table 10.

Results of discrete sampling indicated that the southernmost boundary of Area 2B could be adjusted slightly to the north because samples collected from the zone of contamination in test pits 42 and 44 did not contain concentrations of VOCs above NYSDEC soil cleanup objectives.

Table 10 - Summary of Average Total Contaminant concentrations in Soil, Action Level Concentrations, and Concentrations that are Ten Times the LDR

COC	Average Total Contaminant Concentration in µg/Kg from PSA, RI, Phase II RI, IRM Investigation, and Test Pit Sampling ¹						NYSDEC Contained-In Policy Soil Action Level ²	Ten Times the LDR Concentration ³
	Area 1A (7) ⁴	Area 1B (4) ⁴	Area 1C (2) ⁴	Area 1D (2) ⁴	Area 2A (41) ⁴	Area 2B (2) ⁴		
Vinyl chloride ⁵	220	220	5	70	90	130	360	60,000
Methylene chloride	310	360	5	170	130	15	93,000	300,000
Trichloroethene	6,720	2,020	130	1,190	2,080	1,410	64,000	60,000
Acetone	370	360	20	160	310	20	8x10 ⁶	1.6x10 ⁶
1,2-Dichloroethene (total <i>cis</i> and <i>trans</i>)	310	200	560	610	990	840	2.8x10 ⁶	300,000
Toluene	310	360	80	310	360	15	2x10 ⁷	100,000
Ethyl benzene	230	360	110	750	230	15	8x10 ⁶	100,000
Total xylenes	370	6	810	2,850	560	15	2x10 ⁸	300,000

¹NOTE: The average total concentration of each contaminant in soil was computed for all available soil data collected during the PSA, RI, Phase II RI, and IRM investigation. The method used to calculate the average concentration was a standard mathematical average. In samples where contaminants were not detected above the analytical method detection limit, the contaminant concentration was assumed to be 50% of the detection limit reported for that sample.

²NOTE: Soil Action Levels from NYSDEC TAGM #3028, November 30, 1992

³NOTE: LDR Concentrations from EPA Federal Register Part II, Land Disposal Restrictions Phase IV, May 26, 1998

⁴NOTE: Number of results used to calculate average concentration

⁵NOTE: Where vinyl chloride was not detected vinyl chloride concentrations were assumed to be 50% of the detection limit except for the results obtained during the IRM Investigation and test pit sampling where the vinyl chloride concentration was estimated as shown in the attached letter in Appendix D.

Table 10 - Summary of Average Total Contaminant concentrations in Soil, Action Level Concentrations, and Concentrations that are Ten Times the LDR (cont'd)

COC	Average Total Contaminant Concentration in µg/Kg from PSA, RI, Phase II RI, IRM Investigation, and Test Pit Sampling ¹			NYSDEC Contained-In Policy Soil Action Level ²	Ten Times the LDR Concentration ³
	Area 2C (6) ⁴	Area 3 (5) ⁴	Area 4 (2) ⁴		
Vinyl chloride ⁵	110	210	10	360	60,000
Methylene chloride	120	360	10	93,000	300,000
Trichloroethene	860	3,120	5	64,000	60,000
Acetone	440	470	470	8x10 ⁶	1.6x10 ⁶
1,2-Dichloroethene (total <i>cis</i> and <i>trans</i>)	2,540	2,640	10	2.8x10 ⁶	300,000
Toluene	170	210	10	2x10 ⁷	100,000
Ethyl benzene	780	1,090	10	8x10 ⁶	100,000
Total xylenes	990	4,310	10	2x10 ⁸	300,000

¹NOTE: The average total concentration of each contaminant in soil was computed for all available soil data collected during the PSA, RI, Phase II RI, and IRM investigation. The method used to calculate the average concentration was a standard mathematical average. In samples where contaminants were not detected above the analytical method detection limit, the contaminant concentration was assumed to be 50% of the detection limit reported for that sample.

²NOTE: Soil Action Levels from NYSDEC TAGM #3028, November 30, 1992

³NOTE: LDR Concentrations from EPA Federal Register Part II, Land Disposal Restrictions Phase IV, May 26, 1998

⁴NOTE: Number of results used to calculate average concentration

⁵NOTE: Where vinyl chloride was not detected vinyl chloride concentrations were assumed to be 50% of the detection limit except for the results obtained during the IRM Investigation and test pit sampling where the vinyl chloride concentration was estimated as shown in the attached letter in Appendix D.

Table 11 - VOC Analytical Results for Discrete Soil Samples

COC	Sample ID, Area, Test Pit Nos., Depth of Contamination, and Concentration (µg/kg)								Cleanup Objective (µg/kg) ¹	Action Level (µg/kg) ₂
	AREA 2A		AREA 2B		AREA 2C					
	PCTP-S047 2A, TP36 10-12'	PCTP-S048 2B, TP44 10-12'	PCTP-S049 2B, TP42 10-12'	PCTP-S050 2C, TP49 4-6'	PCTP-S051 2C, TP48 4-6'	PCTP-S052 2C, TP48 6-8'	PCTP-S053 2C, TP47 4-6'	PCTP-S054 2C, TP50 4-6'		
Vinyl chloride	61 U	34	52	12 U	870	550	260 D	14 J	200	360
Methylene chloride	61 U	13 U	12 U	12 U	63 U	63 U	62 U	54 U	150	93,000
Acetone	61 U	8 J	6 J	16	27 J	370	62 U	54 U	200	8x10 ⁶
1,2-Dichloroethene (total cis and trans)	61 U	180	330 D	2 J	14,000 D	150,000 D	7,500 D	1,000	410	2.8x10 ⁶
Trichloroethene	61 U	25	140	12 U	500	150,000 D	62 J	41,000 D	880	64,000
Toluene	61 U	13 U	12 U	12 U	690 J D	200,000 D	340	8 J	2,100	20x10 ⁶
Ethylbenzene	61 U	13 U	12 U	1 J	2,200 D	60,000 D	190	50 J	7,700	8x10 ⁶
Xylenes (total)	6 J	13 U	12 U	12 U	8,000 D	50,000 D	220	72	1,680	2x10 ⁸
Benzene	61 U	13 U	1 J	12 U	52 J	270	61 J	54 U	110	24,000

- Shaded areas denote COC exceedance of the Cleanup Objective

- Shaded areas denote COC exceedance of the Soil Action Level

¹ - Recommended Soil Cleanup Objectives calculated based on 1.4% TOC in soil (NYSDEC TAGM HWR-94-4046, January 24, 1994).

² - Soil Action Level (NYSDEC TAGM #3028, November 30, 1992).

D - Indicates all compounds identified in an analysis at a secondary dilution factor.

J - Indicates an estimated value.

U - Indicates that the compound was not detected above the detection limit indicated.

2.3.6 Correlation of Analytical and Screening Results

Analytical results for VOCs in TCLP leachate and for VOCs in soil were compared for sixteen soil samples. Figure 6 shows the correlation between VOC concentrations in leachate vs. VOC concentrations in soil for trichloroethene (TCE). This tentative relationship indicates that as trichloroethene concentrations increase in soil, they also increase in leachate. No unusually high concentrations of trichloroethene were detected in leachate where trichloroethene was not also detected at high concentrations in soil.

All soil samples collected during test pit sampling were screened with a PID to allow an assessment of the correlation of VOC analytical results and PID field screening results as shown in Figure 7. Figure 7 indicates a generally linear trend on the logarithmic graph between total VOCs in soil and headspace gas PID results; however the relationship is not highly accurate. Soil samples with total VOC concentrations of between 1,000 and 1,500 µg/Kg exhibit PID readings as low as 8 ppm or as high as 800 ppm. Additional graphs and PID results for each sample are provided in Appendix E.

The PID was used as a screening tool along with field observations to segregate potentially clean soils from the soils that exceeded cleanup objectives or action levels as excavation was conducted. Soils that exhibited a PID reading of less than 10 ppm generally did not contain total VOCs above 1,000 ppm. Graphs for trichloroethene and vinyl chloride in Appendix E show that soils exhibiting a PID reading of less than 10 ppm generally did not contain trichloroethene or vinyl chloride above their respective cleanup objectives. This information was used to develop a rule of thumb for soil screening and segregation during excavation. Soil that did not exhibit staining, odors or other signs of contamination and that exhibited a response of less than 10 ppm on the PID during excavation was segregated, stockpiled, and sampled to determine if it could be used as clean backfill. Similarly, soils that exhibited a response of greater than 500 ppm on the PID were segregated, stockpiled and sampled to ensure that they did not contain VOCs above action level concentrations. The action level for vinyl chloride of 360 µg/Kg is less than 500 ppm; however, vinyl chloride is a breakdown product of trichloroethene, and as such does not occur on the site as a pure product. Vinyl chloride is only a fraction of the total VOC concentration found in on-site soils. For this reason, a PID screening limit of 500 ppm was considered sufficient to identify potential action level concentrations of vinyl chloride in soil.

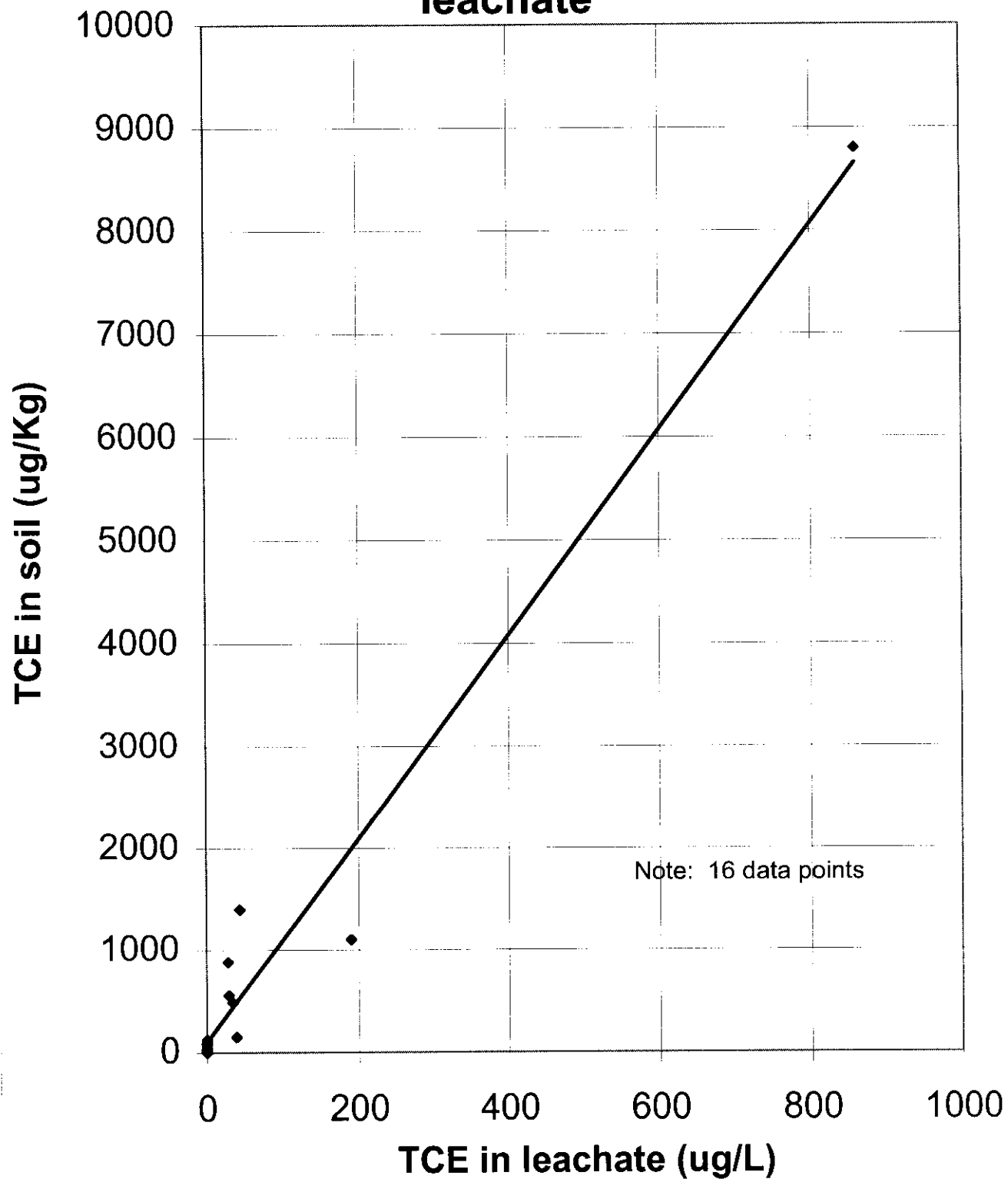
2.3.7 Approach to Excavation and Disposal

The results from test pit sampling determined that soils at the site can be disposed as non-hazardous waste, except for soils in Areas 2C, 2D and 5. Soils from areas 2D, part of 2C, and 5 were managed as action level soils and disposed in a RCRA Part 373 landfill. Soils from Area 2D failed TCLP testing due to trichloroethene and were disposed using waste code D040. Soils from Area 5 failed TCLP testing due to lead and were disposed using waste code D008. Soils from part of Area 2C exceeded action levels for vinyl chloride and trichloroethene. Soils from this area were disposed using waste codes U043 and U228.

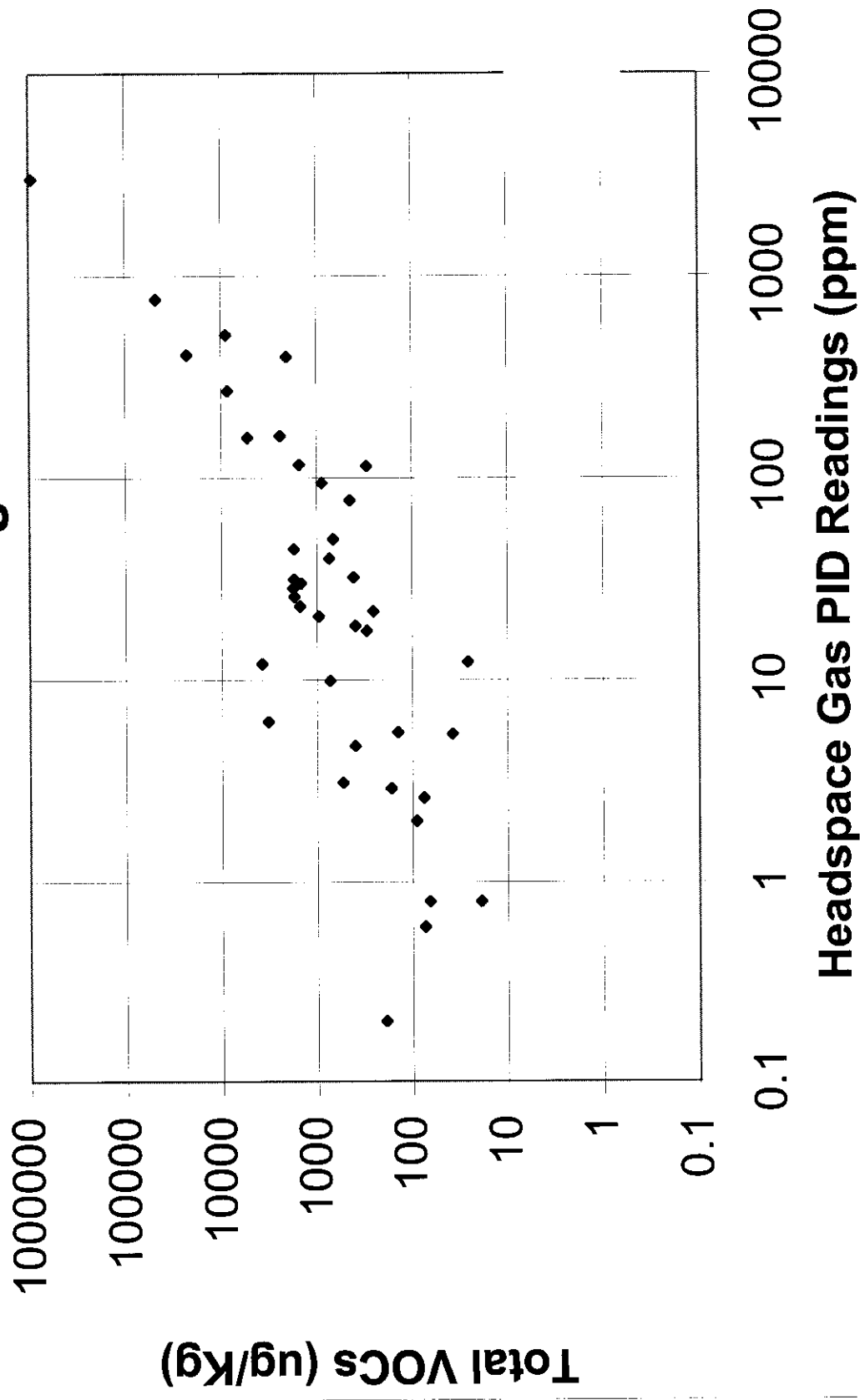
Discrete sampling in Area 2B and test pit results in Area 2E allowed a slight reduction in the size of these areas. All of Area 2D was considered action level soils, as well as part of Area 2C and all of Area 5. Figure 8 depicts the modified excavation areas and action level soil areas based on the data obtained from test pit sampling. Table 12 provides an updated breakdown of soil excavation areas and volumes



Figure 6. TCE in soil vs. TCE in leachate



**Figure 7. Total VOCs vs. Headspace Gas
PID Readings**



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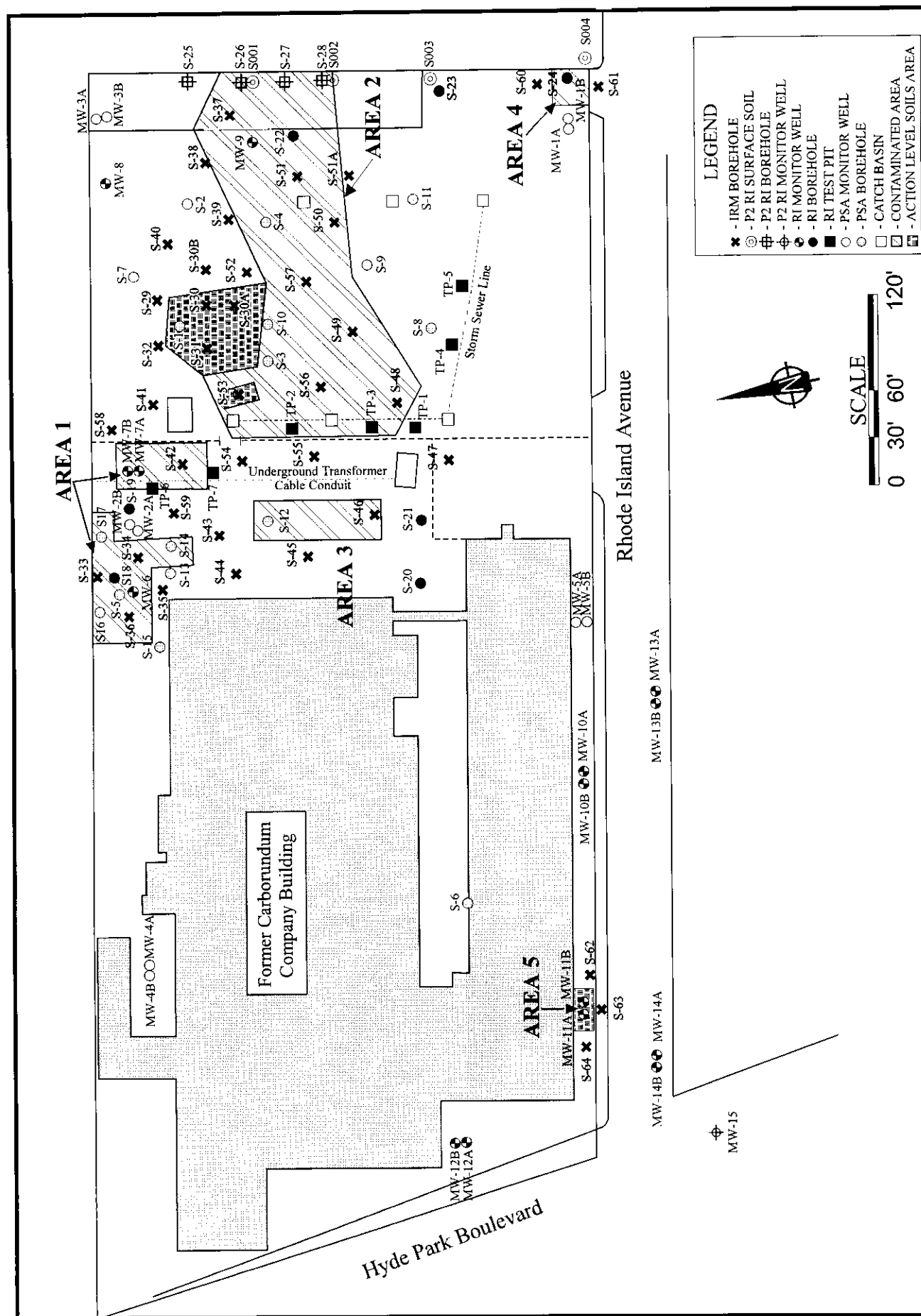




Table 12. Summary of Soil Excavation and Classification

Excavation Area	Lateral Area (ft ²)	Estimated Depth of Excavation (ft)	Estimated Volume of Soils to be Excavated (yd ³)	Depth to top of Contaminated Zone (ft)	Volume of Potentially Clean Soils (yd ³)	Thickness of Contaminated Zone (ft)	Volume of Contaminated Soils (yd ³)	Contaminant Type	Classification of Contaminated Soils
Area 1a	3,300	4	490	0	0	4	490	VOC&PAH	non-hazardous
Area 1b	1,150	10	430	8	340	2	90	VOC	non-hazardous
Area 1c	1,300	2	100	0	0	2	100	VOC	non-hazardous
Area 1d	1,330	8	400	6	300	2	100	VOC	non-hazardous
Area 2a	21,900	16	13,000	0	0	16	13,000	VOC	non-hazardous
Area 2b	2,600	12	650	10	540	2	110	VOC	non-hazardous
Area 2c	2,360	24	2,100	2	180	22	1,920	VOC	Exceeds action levels between 4-8 ft around borehole S-53 and test pit 48 ¹ ; all else is non-hazardous
Area 2d	2,930	4	430	0	0	4	430	VOC	Exceeds action levels or failed TCLP testing
Area 2e	860	4	To be determined	To be determined	To be determined	To be determined	To be determined	VOC	Presence of contaminated soils is yet to be confirmed
Area 3	1460	4	220	0	0	4	220	VOC	non-hazardous
Area 4	640	4	100	2	50	2	50	Acetone	non-hazardous
Area 5	400	2	30	0	0	2	30	Xylenes, Lead	Exceeds action levels or failed TCLP testing
TOTALS			17,950		1,410		16,540		

¹ NOTE: Approximately 80 yd³ of soil in Area 2c contains VOCs above action levels. The total approximate volume of action level soils on the site is 540 yd³.

2.4. ON-SITE SCREENING AND SEGREGATION OF SOILS

During the execution of the IRM soil excavation program, the results from the pre-characterization test pit sampling program were combined with on-site soil screening to ensure appropriate soil disposal. Soils were inspected by DE&S personnel for staining and screened for VOCs using the PID as they were excavated. Soil that demonstrated PID readings greater than 500 ppm was stockpiled and sampled for VOCs analysis to determine the appropriate disposal option. Soil that had PID readings less than 500 ppm and greater than 10 ppm was disposed in a RCRA Part 360 landfill as non-hazardous material. Soil that had PID readings less than 10 ppm was stockpiled for VOCs analysis as potentially clean backfill. Soil was stockpiled on and covered by plastic sheeting while on site to minimize dust and volatilization.

Soil excavated from the site was segregated into three categories for disposal purposes. These categories include:

1. Clean Soils - Soil with contaminant concentrations below the NYSDEC soil clean-up objectives for VOCs and/or PAHs.
2. Non-Hazardous Soils - Soil with contaminant concentrations above the clean-up objectives for VOCs and/or PAHs, but below the action level concentrations for VOCs. There are no action level concentrations for PAHs.
3. Action Level Soils - Soil with contaminant concentrations above NYSDEC action levels for VOCs.

2.5. SOIL DISPOSAL AND HAULING

Action level soils excavated from the site were disposed at CWM Chemical Services, a RCRA Part 373 registered landfill. Non-hazardous soils were disposed at MODERN landfill, a RCRA Part 360 municipal waste landfill. Both landfills are located in Model City, New York. Trucks hauling to CWM were lined and covered with plastic. Trucks hauling to MODERN were covered with tarps. To increase IRM work efficiency, double hauling was conducted when feasible. This involved trucks hauling non-hazardous soil to MODERN landfill returning to the site with clean fill. Trucks were decontaminated at MODERN landfill with clean water. The cleaning procedure was spot checked by DE&S field staff and two rinsate samples (*RINSATE-1* and *RINSATE-2*) were collected during the IRM. The laboratory analytical results for the rinsate samples are attached in Appendix F. The route used by the trucks went through the Niagara Vest Inc. property located to the north of the site. The route was accessed from Hyde Park Boulevard. Written permission to use the property was provided by Niagara Vest Inc. and a letter is attached in Appendix G.

2.6. AIR MONITORING

Continuous work area and community air monitoring was conducted by DE&S personnel on-site during excavation activities according to the Health and Safety Plan in the Plans and Specifications Document.

Three air monitoring stations were set up daily, if possible; two downwind of excavation activities and one upwind. Wind direction was determined using a wind sock. In general, wind direction was not consistent throughout the day, nor from day to day during the IRM. Each station included one dust monitor (MIE Personal Dataram Monitor) and one PID monitor (RAE MultiRAE O2-LEL-H2S-CO-PID Detector). The monitors had datalogging capabilities and recorded dust or total VOCs concentrations, short-term exposure limits (STEL) and the maximum and minimum one minute averages. There were no VOCs concerns and in general, no dust concerns identified during monitoring. Some exceedances were noted for dust in the data; however, because of the small working space, air monitoring stations often had to be placed closer than 25 feet from the work area or directly beside truck routes. This sometimes affected the one minute average and STEL dust readings. High dust readings however were not continuously or consistently encountered. During wet weather, the air monitoring stations were dismantled because the instruments could be damaged and because dust and VOCs in air concerns are minimized when excavations and truck routes are wet.

Air monitoring data is summarized in tables that are attached in Appendix H. Complete data logs are available upon request for inspection.

Contaminant concentrations in the workers' breathing zone were monitored throughout each day using a PID. Readings did not exceed 5 ppm and therefore, air purifying respirators were not required for personnel working on the site.

2.7. WELL ABANDONMENT AND RESTORATION

Groundwater monitoring well MW-9 was located in the north-east portion of excavation area 2A. Prior to excavating in this area, the monitoring well was abandoned on May 28, 1999 by Earth Dimensions, Inc. of Elma, New York. Abandonment was performed in accordance with NYSDEC monitoring well decommissioning procedures (NYSDEC, October 1996). The well was drilled out to 43.5 ft BGS with 6 inch hollow stem augers and grouted from the bottom using a tremmie pipe.

Monitoring wells MW-6, MW7A-7B and MW11A-11B were in the center of excavations 1A/1C and 5 but they were not damaged. The concrete well protectors were replaced and the concrete pads around the wells were replaced. The stickup height of MW-6 was lowered following excavation because the final grade in area 1A was lower than pre-work conditions. Area 1A contained the railroad spur, which was raised above the surrounding area; however, at the request of Kanthal-Globar, the railroad spur was not replaced and the area was graded level with the lower surrounding grade.

2.8. EXCAVATION WATER DISPOSAL

Groundwater and purge water encountered in the IRM excavations was pumped into 20,000 gallon tanks for settling prior to diversion to a sanitary sewer access on Rhode Island Avenue. The City of Niagara Falls, with permission from the Town of Niagara, issued DE&S a permit for water disposal. Initially, 1,500 gallons per day was permitted for discharge to the sanitary sewer for treatment at the City of Niagara Falls wastewater

treatment plant. The permitted volume was increased to 20,000 gallons per day as the project progressed and more water was encountered. The total volume of wastewater discharged to the sanitary sewer was 307,600 gallons. DE&S was required by the City of Niagara Falls to sample the discharge water and report the results monthly. The samples were collected from the storage tanks and/or excavations into a clean glass jar and transferred immediately into laboratory prepared bottles. The permits and monthly reports are attached in Appendix I. A summary table of analytical results for discharge samples and mass discharged to the sewer is provided in Table 13.

2.9. VERIFICATION SAMPLING AND QUALITY ASSURANCE/QUALITY CONTROL

Once it was believed that soils containing COC concentrations above NYSDEC Soil Clean-up Objectives were removed from each area, DE&S field personnel conducted verification sampling of the floor and walls of the excavation. Discrete grab samples were collected by using a corner of the backhoe bucket and scraping a vertical section of the excavation over a distance of approximately two feet. DE&S collected the grab sample from the bucket and transferred it to a clean sample container. Verification samples were collected based on the following sampling rationale:

- Samples were collected in areas suspected to have the highest COC concentrations based on visual or olfactory evidence of contamination, or on PID readings; or,
- If no evidence of contamination was observed, samples were collected from material types believed to be most heavily impacted based on site conditions or grain size, etc.

Each soil sample was collected in two self-sealing plastic bags: one bag was sealed with maximum headspace and allowed to reach ambient temperature for headspace gas measurement with a PID, and one bag was sealed with minimum headspace and stored on ice for possible selection for laboratory analysis. Headspace gas readings for VOCs were measured using the PGM-50 Multi Gas Monitor manufactured by RAE Systems Inc. Headspace gas concentrations were measured by inserting the instrument probe in the plastic bag and simultaneously manipulating the sample. The results of headspace screen were used to determine whether samples should be submitted to the laboratory, or if additional excavation should be conducted.

NYSDEC personnel collected selected split soil samples for analysis to provide an independent evaluation of soil sampling results. DE&S collected duplicate samples at a frequency of approximately one for every fifteen samples to check the precision of the analytical laboratory and sampling procedures, for QA/QC purposes. When filling duplicates or splits, the verification sample jar and the duplicate/split sample jar were filled simultaneously to maximize homogeneity between samples. Sample jars were filled leaving the smallest amount of headspace possible. Samples were identified with the area name and numbered sequentially. A trip blank was submitted for VOCs analysis with each shipment of VOC samples.

Table 13 - Analytical Results for Water Discharge to Sewer

Parameter	Units	Analytical Results for Discharge Samples			Parameter Discharge to Sewer (based on 20,000 gallon/day discharge)			Allowable Parameter Discharge (mg/day)
		Discharge 1 June 3, 1999	Discharge 2 June 8, 1999	Discharge 3 July 2, 1999	Discharge 1 mg/day	Discharge 2 mg/day	Discharge 3 mg/day	
1,1,1-Trichloroethane	mg/L	Nd	nr	Nd	---	---	---	na
1,1,2,2-Tetrachloroethane	mg/L	Nd	nr	Nd	---	---	---	na
1,1,2-Trichloroethane	mg/L	Nd	nr	Nd	---	---	---	na
1,1-Dichloroethane	mg/L	0.001 J	nr	Nd	75	---	---	na
1,1-Dichloroethene	mg/L	Nd	nr	Nd	---	---	---	na
1,2-Dichloropropane	mg/L	Nd	nr	Nd	---	---	---	na
1,2-Dichlorobenzene	mg/L	Nd	nr	Nd	---	---	---	na
1,2-Dichloroethane	mg/L	Nd	nr	Nd	---	---	---	na
1,3-Dichlorobenzene	mg/L	Nd	nr	Nd	---	---	---	na
1,4-Dichlorobenzene	mg/L	Nd	nr	Nd	---	---	---	na
2-Butanone	mg/L	0.002 JB	nr	Nd	151	---	---	455
2-Chloroethylvinylether	mg/L	Nd	nr	Nd	---	---	---	na
2-Hexanone	mg/L	Nd	nr	Nd	---	---	---	na
4-Methyl-2-pentanone	mg/L	0.001 J	nr	Nd	75	---	---	na
Acetone	mg/L	0.008 JB	nr	Nd	606	---	---	4,545
Benzene	mg/L	Nd	nr	Nd	---	---	---	9,091
Bromodichloromethane	mg/L	Nd	nr	Nd	---	---	---	na
Bromoform	mg/L	Nd	nr	Nd	---	---	---	na
Bromomethane	mg/L	Nd	nr	Nd	---	---	---	na
Carbon disulfide	mg/L	Nd	nr	Nd	---	---	---	na
Carbon Tetrachloride	mg/L	Nd	nr	Nd	---	---	---	na
Chlorobenzene	mg/L	Nd	nr	Nd	---	---	---	na
Chloroethane	mg/L	Nd	nr	Nd	---	---	---	na
Chloroform	mg/L	Nd	nr	Nd	---	---	---	na
Chloromethane	mg/L	Nd	nr	Nd	---	---	---	na
cis-1,3-Dichloropropene	mg/L	Nd	nr	Nd	---	---	---	na
Dibromochloromethane	mg/L	Nd	nr	Nd	---	---	---	na
Ethylbenzene	mg/L	0.005 J	nr	Nd	379	---	---	4,545
Methylene chloride	mg/L	Nd	nr	Nd	---	---	---	na

Table 13 -- Analytical Results for Water Discharge to Sewer -- Cont'd

Styrene	mg/L	Nd	nr	Nd	---	---	---	na
Tetrachloroethene	mg/L	Nd	nr	Nd	---	---	---	na
Toluene	mg/L	0.005 J	nr	Nd	379	---	---	4,545
Total Xylene	mg/L	0.048	nr	Nd	3,634	---	---	9,091
Total-1,2-Dichloroethene	mg/L	0.120	nr	540 D	9,085	---	40,883	45,455
trans-1,3-Dichloropropene	mg/L	Nd	nr	Nd	---	---	---	na
Trichloroethene	mg/L	0.075	nr	53 D	5,678	---	4,013	100,000
Vinyl acetate	mg/L	Nd	nr	Nd	---	---	---	na
Vinyl chloride	mg/L	0.008 J	nr	45 DJ	606	---	3,406	45,455
Soluble organic carbon (DOC)	mg/L	9.2	nr	5.8	696,519	---	439,109	11,409,000
Total suspended solids (TSS)	mg/L	54.0	1,376	6.2	14,096,000 ^(a)	14,096,000 ^(a)	469,393	22,773,000
pH	pH Units	7.9	nr	7.4	---	---	---	6-9

na - not applicable

nr - not requested

a - based on 90% of Discharge 1 concentration and 10% of Discharge 2 concentration of TSS

J - Estimated value

Nd - Parameter not detected above sample quantitation limit

B - Parameter found in laboratory daily blank

D - Sample was diluted and detection limit was higher

Results of verification samples were used to determine whether additional excavation was required, or if excavations could be closed and backfilled. Verification samples that indicated the need for additional excavation became interim samples, as verification samples should represent the condition of soils left on-site. Samples were segregated into interim and verification samples as follows:

- Interim samples are those samples that were collected as verification samples, but laboratory analytical results indicated exceedances of the clean-up objectives or action levels, triggering further excavation and sampling.
- Verification samples are samples that represent the final conditions of the excavations and thus characterize the soil remaining on site.

Samples were analyzed by Severn Trent Laboratories (STL), a New York State certified analytical laboratory. Analytical reports were provided in accordance with ASP Category B deliverables. Data validation was completed by CRA Services. Sample data was validated at a rate of 35%.

2.10. DATA VALIDATION

Validation of the data was completed for both field and laboratory aspects of the sampling program. Data validation consisted of:

- Assessment of the field sampling protocols and Quality Assurance/Quality Control (QA/QC) procedures, and
- Assessment of the laboratory analytical methodology and QA/QC procedures.

2.10.1 Field Sampling QA/QC

To ensure that representative samples were collected in the field and were delivered to the laboratory without degradation or contamination of the sample, the following field QA/QC measures were taken:

- Stainless steel sampling equipment including sampling spatulas or trowels were rinsed in detergent solution and distilled water after each sample.
- Samples collected directly from the excavator bucket were collected from soil that had not come in contact with the bucket itself in an effort to prevent cross-contamination.
- Field staff used new latex gloves for each sample.
- Soil samples were immediately screened for organic vapors using a PID, and were transferred to clean glass jars.
- Samples were delivered to the laboratory in sealed, iced coolers under chain-of-custody within 48 hours of sampling.

During sampling, duplicate samples and travel blanks were collected to assess analytical precision and to identify potential sample contamination during sampling or transportation. The additional samples, all analyzed for VOCs, included the following:

- Duplicate soil samples were collected at a rate of at least 15%. A total of 38 duplicate samples were collected from a total of 224 interim or verification soil samples.
- Travel/trip blanks were shipped to the laboratory at a rate of 1 per sample shipment that contained samples for VOCs analysis. A total of 31 trip blanks were submitted to the laboratory.

Relative percent differences (RPDs) between sets of duplicate samples were calculated as follows:

$$RPD = \frac{X_1 - X_2}{\bar{X}} \times 100$$

where X_1 = concentration of first duplicate

X_2 = concentration of second duplicate

$\bar{X}$ = mean concentration

Duplicate samples showed fair correlation, with RPDs of less than 156% between analytes for all parameters. The average of all RPDs ranged between 16% and 67%. The overall sample quality is considered to be acceptable. RPDs of greater than 100% are likely due to inhomogeneities in the soil. RPDs of all field duplicate samples are provided in Table 14.

All travel blank samples were analyzed for VOCs. VOCs were not detected in the blank samples.

Table 14 RPD's for VOCs in Field Duplicate Soil Samples

Sample and Sample Duplicate	Analytical Result (µg/Kg)						
	Vinyl Chloride	Acetone	cis- and trans-1,2-Dichloroethene	Trichloroethene	Toluene	Ethyl benzene	Total Xylenes
1AVS002	Nd	4	1	7	nd	nd	nd
1AVS003	Nd	6	2	21	nd	nd	nd
RPD%	--	40.0%	66.7%	100.0%	--	--	--
1CVS013	Nd	33	120	230	nd	nd	nd
1CVS014	Nd	18	53	100	nd	nd	nd
RPD%	--	58.8%	77.5%	78.8%	--	--	--
3VS024	nd	29	17	80	10	97	720
3VS025	nd	37	42	260	11	70	490
RPD%	--	24.2%	84.7%	105.9%	9.5%	32.3%	38.0%
2AVS035	nd	9	nd	14	nd	nd	nd
2AVS036	nd	13	6	15	nd	nd	nd
RPD%	--	36.4%	100.0%	6.9%	--	--	--
2DVS056	nd	22	430	460	nd	nd	nd
2DVS057	nd	28	470	450	nd	nd	nd
RPD%	--	24.0%	8.9%	2.2%	--	--	--
2AVS101	250	21	1600	600	nd	nd	nd
2AVS102	220	19	1400	630	nd	nd	nd
RPD%	12.8%	10.0%	13.3%	4.9%	--	--	--
2AVS112	400	7	1300	21	nd	nd	nd
2AVS114	140	12	960	11	nd	nd	nd
RPD%	96.3%	52.6%	30.1%	62.5%	--	--	--
2AVS135	59	16	1200	110	nd	nd	nd
2AVS136	nd	44	150	33	nd	nd	nd
RPD%	100.0%	93.3%	155.6%	107.7%	--	--	--
1AVS140	nd	37	nd	10	nd	nd	nd
1AVS141	nd	61	nd	nd	nd	nd	nd
RPD%	--	49.0%	--	100.0%	--	--	--
2BVS171	73	30	1300	3400	nd	nd	nd
2BVS172	74	22	980	2700	nd	nd	nd
RPD%	1.4%	30.8%	28.1%	23.0%	--	--	--
2CVS176	66	17	2700	530	nd	nd	nd
2CVS177	17	12	980	330	nd	nd	nd
RPD%	118.1%	34.5%	93.5%	46.5%	--	--	--
2CVS189	nd	21	1200	900	8	75	nd
2CVS193	nd	13	1000	1400	10	87	6
RPD%	--	47.1%	18.2%	43.5%	22.2%	14.8%	100.0%
4VS205	nd	35	nd	nd	nd	nd	nd
4VS207	nd	31	nd	nd	nd	nd	nd
RPD%	--	12.1%	--	--	--	--	--
5VS198	nd	20	nd	nd	nd	nd	nd
5VS200	nd	25	nd	nd	nd	nd	nd
RPD%	--	22.2%	--	--	--	--	--
1DVS224	100	42	460	680	nd	870	43
1DVS225	140	30	430	1000	nd	1100	53
RPD%	33.3%	33.3%	6.7%	38.1%	--	23.4%	20.8%
2BVS226	nd	46	33	210	nd	nd	nd

Sample and Sample Duplicate	Analytical Result (µg/Kg)						
	Vinyl Chloride	Acetone	cis- and trans- 1,2- Dichloroethene	Trichloroethene	Toluene	Ethyl benzene	Total Xylenes
2BVS228	nd	47	28	130	nd	nd	nd
RPD%	--	2.2%	16.4%	47.1%	--	--	--
2BVS232	62	27	1600	320	nd	nd	nd
2BVS233	88	41	1400	170	nd	nd	nd
RPD%	34.7%	41.2%	13.3%	61.2%	--	--	--
2DVS238	nd	17	94	200	nd	7	60
2DVS239	nd	nd	93	260	nd	nd	18
RPD%	--	100.0%	1.1%	26.1%	--	100.0%	107.7%
1BVS248	nd	24	7	22	nd	nd	nd
1BVS249	nd	22	8	20	nd	nd	nd
RPD%	--	8.7%	13.3%	9.5%	--	--	--
AVERAGE RPD	56.6%	38.2%	45.5%	50.8%	15.9%	42.6%	66.6%
MAX RPD	118.1%	100.0%	155.6%	107.7%	22.2%	100.0%	107.7%
MIN RPD	1.4%	2.2%	1.1%	2.2%	9.5%	14.8%	20.8%

2.10.2 Laboratory QA/QC

STL provided ASP Category B deliverables for all requested analyses. Soil samples were analyzed for VOCs using EPA SW-846 Method 8260, as specified in the IRM Work Plan. The results showed that all samples were analyzed within the required holding time. Internal laboratory QA/QC procedures were sufficient to meet the criteria outlined in the method.

Approximately 35% of collected data were validated by CRA Services of Niagara Falls, New York. Their report is provided in Appendix J. Only a portion of collected data was validated because results have already been used on a fast turnaround-time basis to make field decisions. All verification samples that contain concentrations of COCs above NYSDEC Soil Clean-Up Objectives were validated. Data validation shows that QA/QC was generally acceptable.

2.11. SURVEYING EXCAVATION VOLUMES

The volume of each excavation area was surveyed by Niagara Boundary and Mapping Services of Lewiston, New York. Survey data was used to document excavation size and determine the volume of backfill needed for each excavation. The volume of areas that were required to be backfilled immediately were estimated by DE&S field personnel and MODERN's field supervisor.

2.12. SITE RESTORATION

2.12.1 Imported Backfill

Imported backfill consisted of clean, self-compacting fill classified as silt or clay (SM, SC, or CL) by the Unified Soil Classification System (USCS). Crushed stone backfill was also used as a surface treatment in excavated areas. Imported backfill came from four approved sources: 827 Lake Road, 1500 James Avenue, Bridle Path residential development and MODERN landfill clean soil stockpile at Harold and Pletcher Roads. DE&S collected one composite sample from each source. Each composite sample represented 20 truckloads, or approximately 500 tons. Backfill samples were submitted for TAL/TCL analysis. None of the backfill samples contained contaminant concentrations above regulatory guidelines. The acceptance letters and laboratory reports for imported backfill sources are provided in Appendix K.

Backfill was placed by a bulldozer and compacted in approximately 1 foot lifts using a sheep's foot roller. Some lifts were thicker in very deep excavations due to water seepage problems. Stone was placed by a bulldozer and compacted with a smooth drum roller.

Soil backfill was placed up to 2 ft BGS, above which approximately 6 inches of asphalt and stone that was stripped from excavated areas and stockpiled on the site was placed and compacted. Then one foot of imported stone was placed as a base for surface treatment. Surface treatment in paved areas included the placement of three inches of

gravel and then three inches of asphalt. Surface treatment in unpaved areas included installation of six inches of gravel.

2.12.2 On-Site Backfill

In addition to imported fill, on-site soils and soil stockpiles determined to be clean following analytical testing were used as backfill on site. Analytical data from the on-site clean soil stockpiles are provided in Appendix L.

2.12.3 Stone and Asphalt Backfill

Surface stone and asphalt removed from the excavation areas prior to excavation was stockpiled on site for use as asphalt base during site restoration.

2.12.4 Grading Area 1A

As per discussions with KANTHAL-GLOBAR, area 1A was not restored to previous grade. Previous grade was approximately two feet above surrounding areas because of an abandoned railway spur. The railway spur was removed and the area was graded level with surrounding areas.

2.12.5 Fencing

Fencing along the north property boundary and north-south fencing located north of the liquid nitrogen AST was repaired.

2.12.6 Utilities

Utilities were restored to pre-work conditions by MODERN and its subcontractors. Light standards and electrical wiring were replaced. Concrete piping for the parking lot drainage to storm sewers was replaced with PVC piping. Concrete catch basins were reused, however one concrete catch basin was damaged during excavation work and had to be replaced with a new concrete catch basin.

2.12.7 Paving

All excavation areas previously paved were repaved as well as some small unexcavated areas damaged while moving equipment.

3. IRM SOIL EXCAVATION RESULTS

This section describes the removal of contaminated soil from the site and the condition of soils remaining on-site following excavation. Table 15 summarizes the total volumes, tonnage and lateral areas of excavation. Figure 9, Figure 10 and Figure 11 show the estimated areas, the actual excavated areas and comparison of the estimated and actual excavated areas. Sampling results and excavations are described in the following sections. Each area is discussed separately, except where areas were merged during excavation such as in Area 1A that extended into Area 1C, creating one excavated area. Photographs are provided in Appendix M. Laboratory analytical reports are provided in Appendix N. Total tonnage reports from MODERN landfill and CWM landfill are provided in Appendix O and Appendix P, respectively.

3.1. AREAS 1A AND 1C

Area 1A was identified as an area contaminated with PAHs and VOCs from 0 to 4 ft BGS. Area 1C was identified as an area contaminated with VOCs from 0 to 2 ft BGS. Soil excavated from these areas was non-hazardous and disposed at MODERN landfill. Excavation of areas 1A and 1C was conducted between May 17 and July 12, 1999.

A total of 13 interim samples, 27 verification samples and 3 duplicate samples were collected and submitted to STL for PAHs and/or VOCs analysis. Table 16 is the sample control log for areas 1A and 1C. Interim sampling results indicated that soils from the west and east walls of area 1A contained total PAH concentrations above the clean-up objective requiring further excavation. Excavation of the west wall of area 1A extended 195 ft along an abandoned railway spur. Excavation of the east wall of area 1A extended into area 1C. Interim sampling results from area 1C indicated that the north end of the floor of 1C contained acetone above the clean-up objective; therefore, additional excavation was performed.

One verification sample collected from the north wall of areas 1A and 1C exceeded the clean-up objective for trichloroethene of 19,000 $\mu\text{g/Kg}$. Further excavation to the north was not conducted because the north wall of areas 1A and 1C also represents the north property boundary. A summary of verification sampling VOC results is provided in Table 17.

Due to the discovery of PAHs in Area 1A, DE&S and the NYSDEC established a PAH clean-up objective of 25 ppm (25,000 $\mu\text{g/Kg}$) total PAHs for soil in areas 1A and 1C. This objective was established on June 16, 1999 because clean-up objectives for some individual PAH compounds are quite low and difficult to achieve given the widespread occurrence of PAHs in industrialized areas. Given the historical, current and future use of the property as an industrial site, the likelihood of human exposure to contaminated soil through ingestion and other routes of exposure considered for health-based criteria is very low. Therefore, the 25,000 $\mu\text{g/Kg}$ total PAHs clean-up objective was considered protective of human health and the environment, and reasonably achievable at an industrial facility.

Seven verification samples (1AVS005, -010, -078, -137, -138, -208, -209) collected from the north wall exceeded the total PAH clean-up objective with concentrations that ranged between 28,000 and 457,000 µg/Kg total PAHs. Plastic sheeting was placed along the north wall to help prevent potential recontamination of clean backfill. These samples do not represent contaminated soil remaining on-site because the north wall of the excavation extended to the north property boundary.

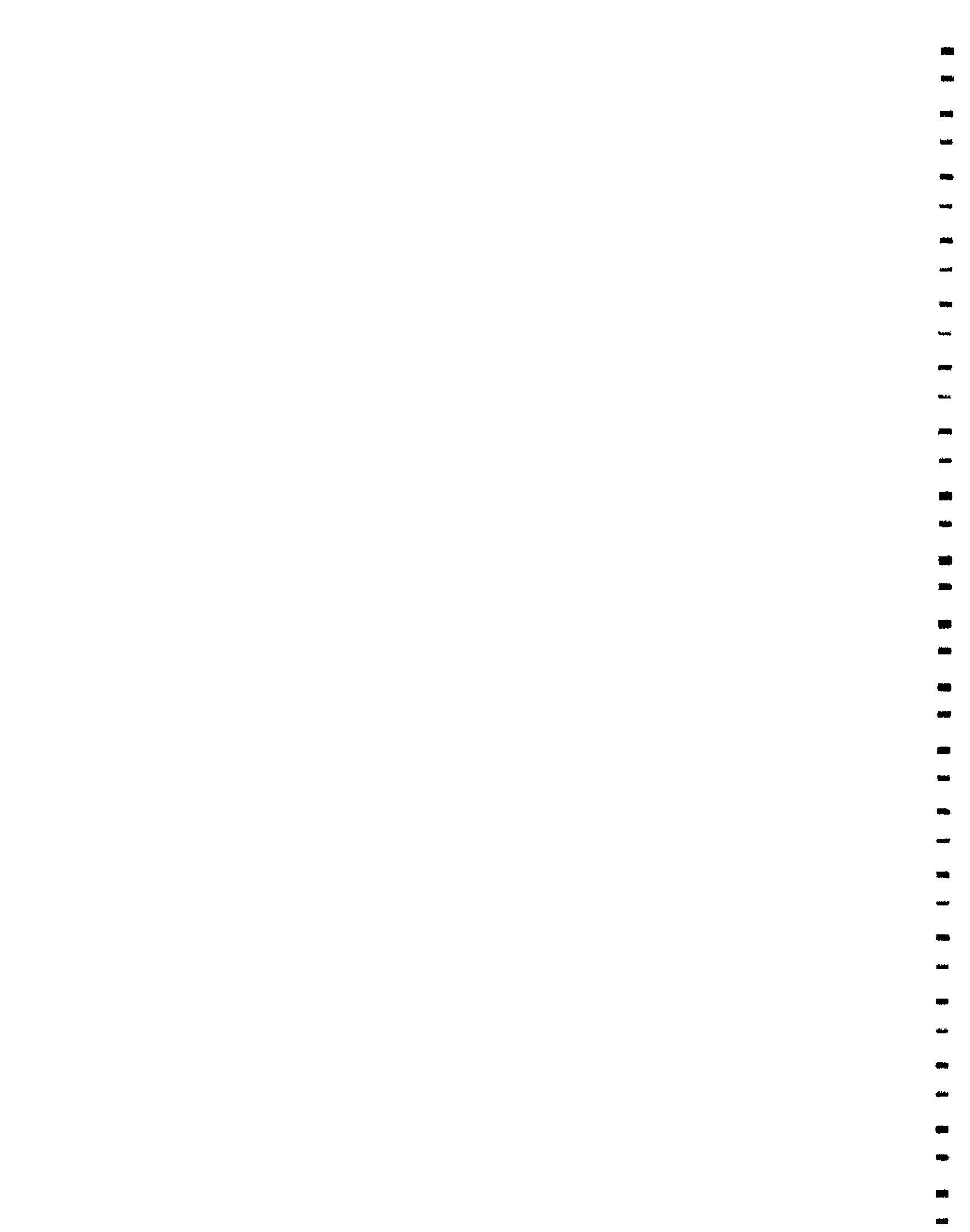
Verification sample 1AVS079 collected from the east wall did not exceed the total PAH clean-up objective; however, the NYSDEC split sample A615-11 did. Upon further examination it has been determined that there was likely an error during labeling, and the split sample was actually split from a different sample. This cannot be confirmed; however, the split sample is suspect. Due to this uncertainty the split sample A615-11 was discarded. Verification samples collected from the remaining excavation surfaces did not exceed the total PAH clean-up objective. A summary of verification sampling PAH results is provided in Table 18.

A total of 2,058 tons or 1,515 yd³ of non-hazardous material was hauled from areas 1A and 1C. Figure 12 and Figure 13 show the locations of verification samples and the extents of excavation. The final depth of excavation in areas 1A and 1C ranged from 2 to 4 ft BGS.

Backfilling and grading in areas 1A and 1C was completed on July 15, 1999. Backfill material was attained from 827 Lake Road.

Table 15 - Excavation Volume, Mass, and Area Summaries.

Area	1A & 1C	1B	1D, 1D-extension & 2C	2A & 2E	2B	2D	3	4	5
Total volume excavated (yd ³)	1,515	460	4,715	13,369	2,074	510	246	83	40
Tonnage disposed as action level (tons)	0	0	1,187	58	0	847	0	0	58
Tonnage disposed as non-haz (tons)	2,058	255	7,111	20,680	2,388	319	522	124	0
Volume stockpiled and reused as clean (yd ³)	0	298	0	2,263	780	0	0	39	0
Lateral excavation area (ft ²)	12,800	1,180	8,010	26,600	4,400	2,540	1,700	600	420



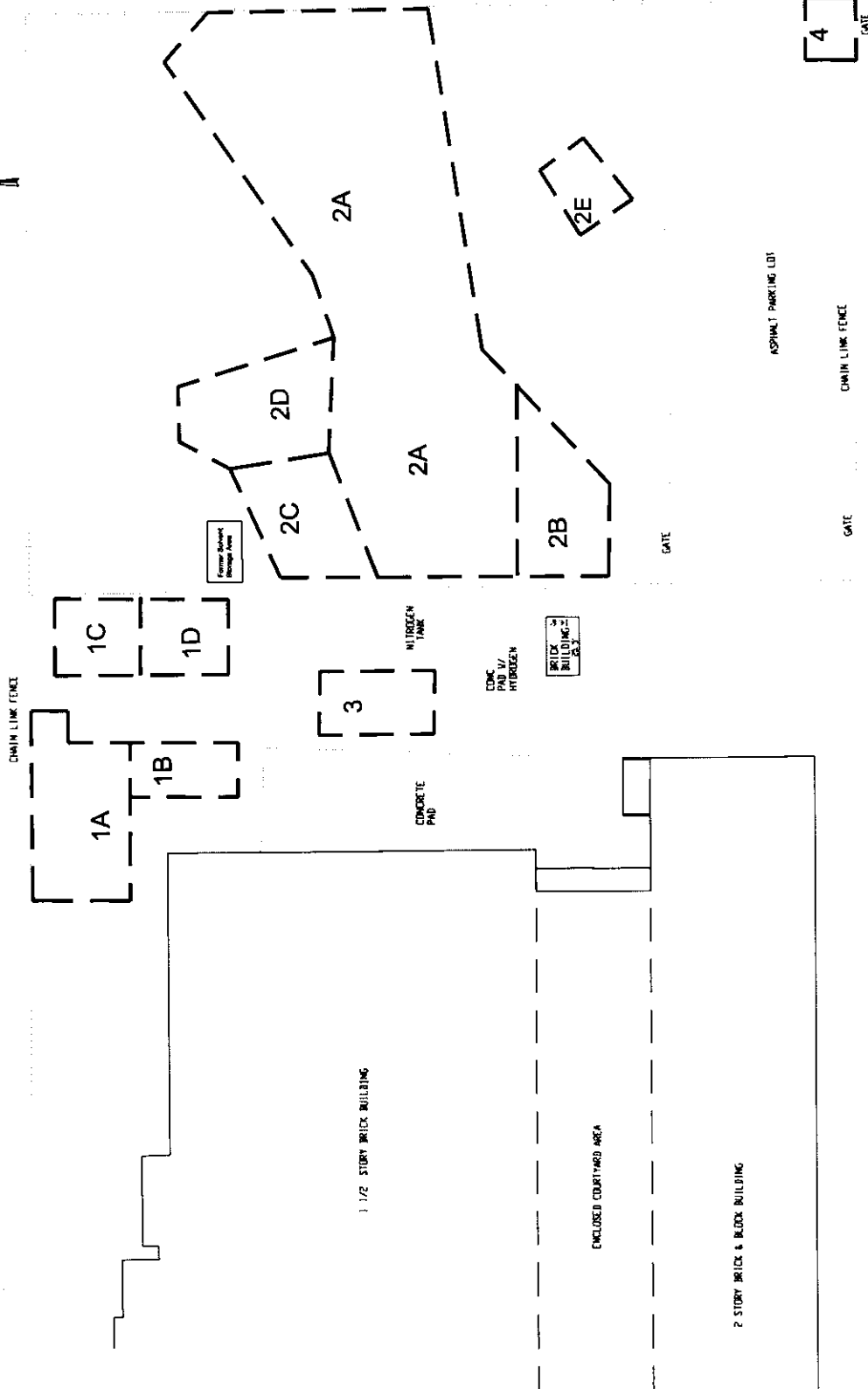
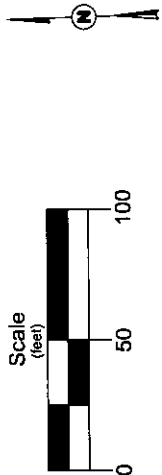


Figure #: **9**

Estimated Areas of Excavation

Legend

— Estimated excavation extent

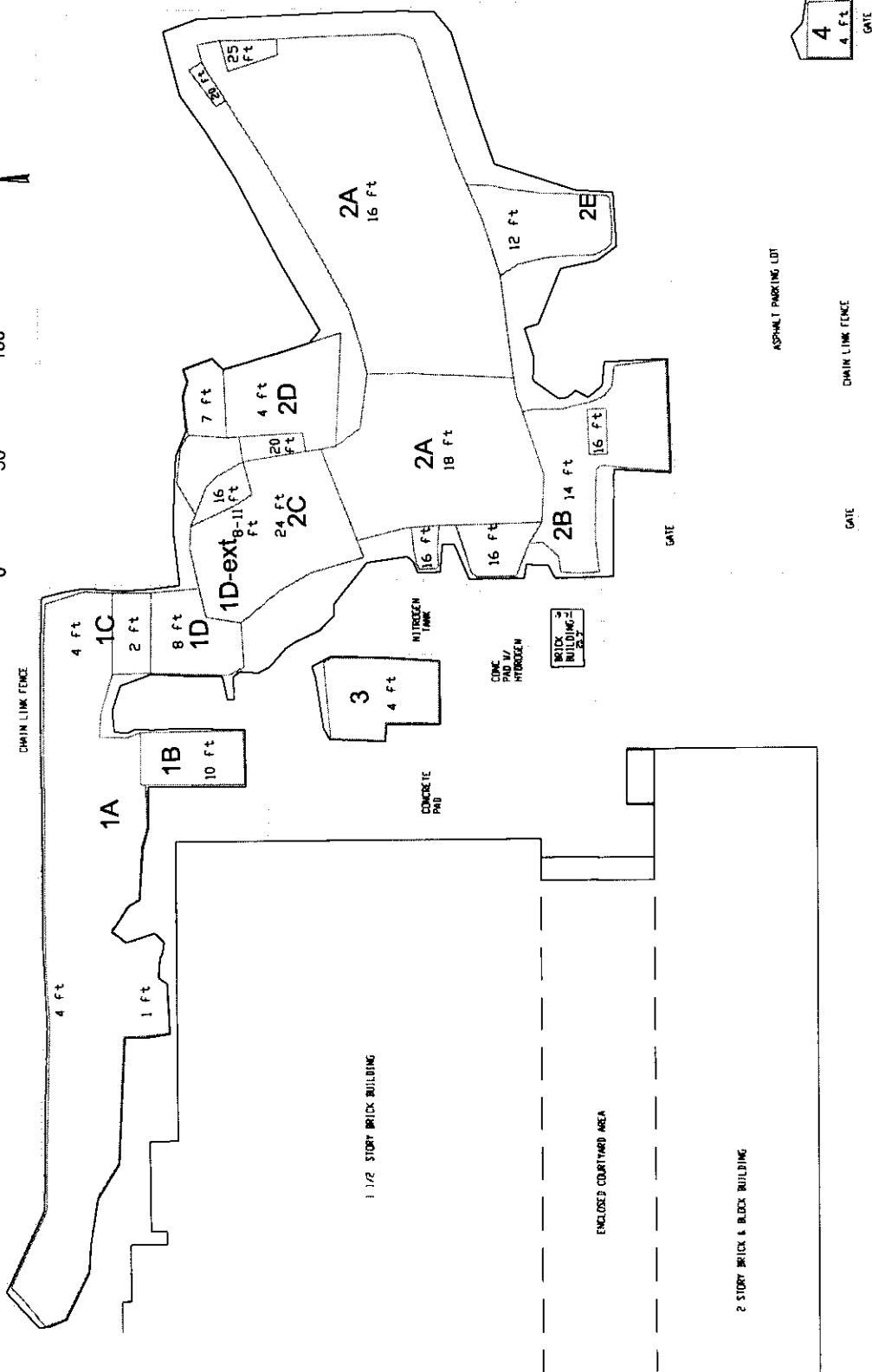
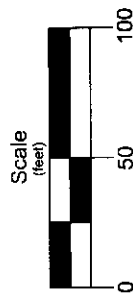
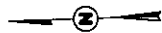
Project #: TM8097

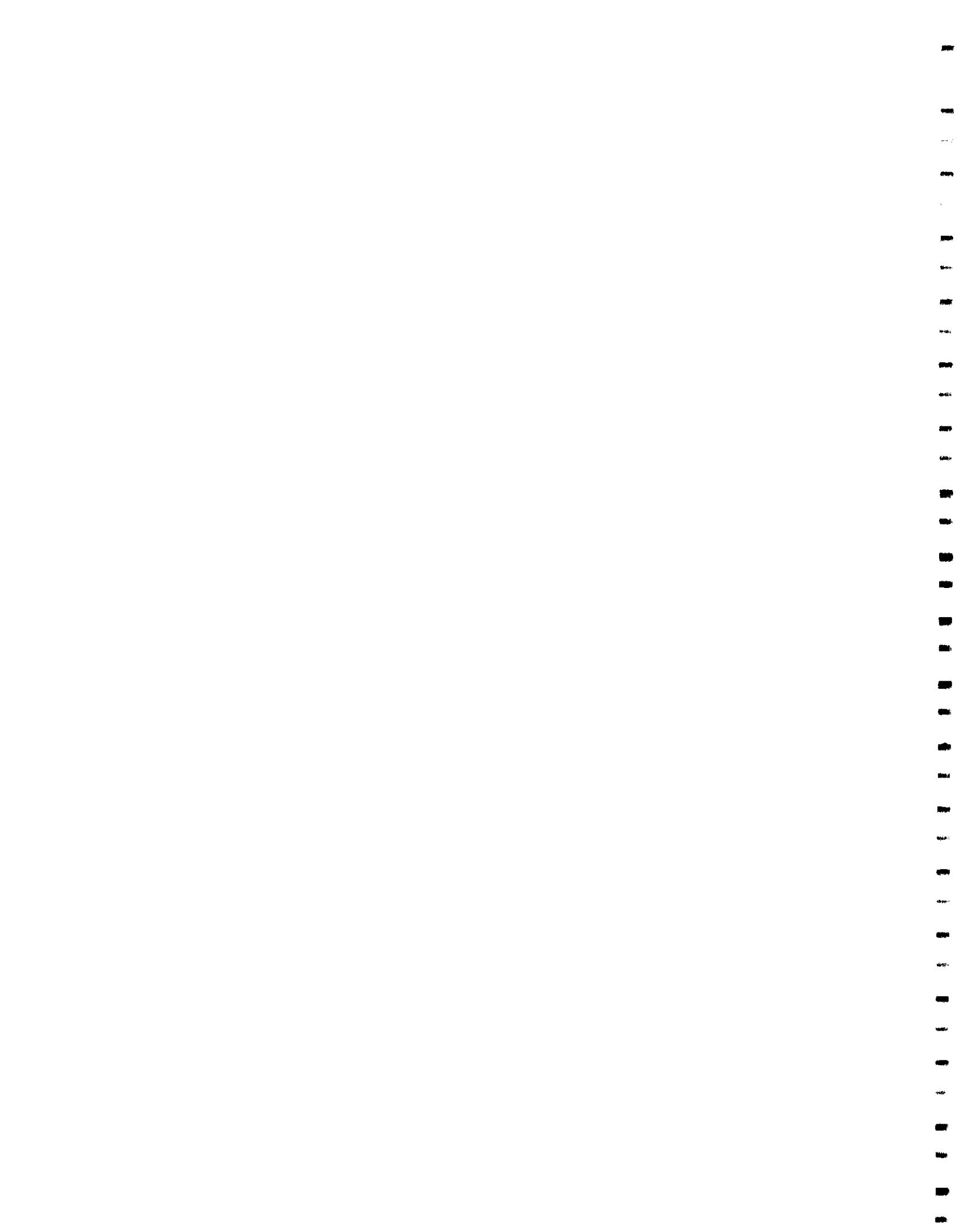
Date: August 18, 1999

Drawn by: MSM

File Name: 8097Contamination.dwg

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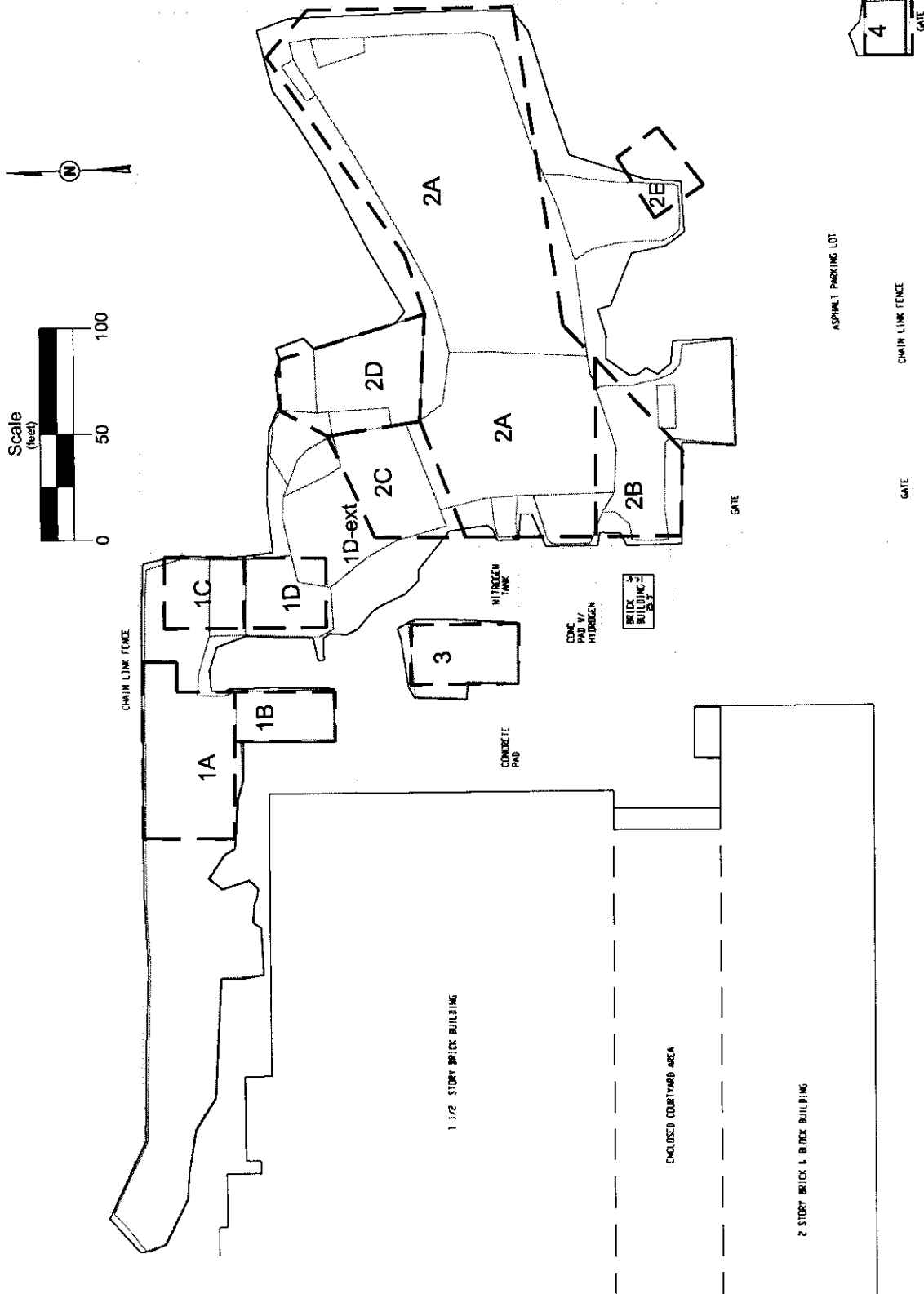


Figure #: 11	Comparison of Estimated and Actual Areas of Excavation	Legend	Duke Engineering & Services (Canada), Inc. A Duke Energy Company 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405
Project #: TM8097	Date: August 18, 1999	— Estimated excavation extent — Top of bank - actual excavation — Bottom of bank - actual excavation	Drawn by: MSM File Name: 8097Contamination.dwg

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Table 16 - Sample Control Log for Areas 1A and 1C.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
1AVS001	May 17/99	floor, south-west quadrant	5.3	Verify	-	no
1AVS002	May 17/99	floor, north-west quadrant	0.4	Verify	-	no
1AVS003	May 17/99	duplicate of 1AVS002	0.4	Verify	-	no
1AVS004	May 17/99	floor, north-east quadrant	0.3	Verify	-	no
1AVS005	May 17/99	north wall, east half	2.8	Verify	-	yes, PAHs
1AVS007	May 17/99	south wall, center	6.7	Verify	-	no
1AVS008	May 17/99	east wall, south half	7	Verify	-	no
1AVS009	May 17/99	floor, south-east quadrant	0.1	Verify	-	no
1AVS010	May 17/99	north wall, west half	0.1	Verify	-	yes, PAHs
1AVS078	June 4/99	East ext, north wall east 1/2, comp	0.1	Verify	-	yes, PAH
1AVS079	June 4/99	East ext, east wall comp	0.1	Verify	A615-11	yes, PAHs
1AVS080	June 4/99	East ext, south wall, comp	0	Verify	-	no
1AVS081	June 4/99	East ext, floor, comp	0	Verify	-	no
1AVS137	June 29/99	1A-ext, N wall, West 1/2	2.6	Verify	-	yes, PAHs
1AVS138	June 29/99	1A-ext, N wall, East 1/2	5.7	Verify	-	yes, PAHs
1AVS143	June 29/99	1A-ext, south wall, west 1/2	2.5	Verify	-	no
1AVS144	June 29/99	1A-ext, floor, west 1/4	2.6	Verify	-	no
1AVS145	June 29/99	1A-ext, floor, east 1/4	3.2	Verify	-	no
1AVS146	June 29/99	1A-ext, floor, west center 1/4	4.4	Verify	-	no
1AVS147	June 29/99	1A-ext, floor, east center 1/4	3.6	Verify	-	no
1AVS208	July 12/99	North wall 1A final extension, near light standard	0.1	Verify	-	yes, TCE, PAH
1AVS209	July 12/99	West/north wall at gate, final extension	0	Verify	-	yes, PAH
1AVS210	July 12/99	Floor, final extension	0	Verify	-	no
1AVS211	July 12/99	Floor, S extension at 1AVS142 exceedance area	1	Verify	-	no

Table 16 - Sample Control Log for Areas 1A and 1C (cont'd)

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
1CVS013	May 18/99	floor, center of south half	4.3	Verify	-	no
1CVS014	May 18/99	duplicate of 1CVS013	4.3	Verify	-	no
1CVS015	May 18/99	west wall, composite	0	Verify	-	no
1CVS017	May 18/99	east wall, composite	0	Verify	-	no
1CVS048	May 25/99	floor, north end, 3.5 ft	3.5	Verify	-	no
1ATP001	May 24/99	test pit 20 ft W of 1A west wall, 0-4 ft	1	Interim	-	yes, PAHs
1ATP002	June 2/99	test pit 100 ft W of 1A west wall, 0-4 ft	ns	Interim	-	yes, PAHs
1ATP003	June 2/99	test pit 67 ft W of 1A west wall, 0-4 ft	ns	Interim	-	yes, PAHs
1ATP004	June 2/99	test pit 42 ft W of 1A west wall, 0-4 ft	ns	Interim	-	no
1AVS006	May 17/99	east wall, north half	0.2	Interim	-	yes, PAHs
1AVS011	May 17/99	west wall, center	0.3	Interim	-	yes, PAHs
1AVS044	May 24/99	west wall, composite	1	Interim	-	yes, PAHs
1AVS045	May 24/99	east wall, composite	1	Interim	-	yes, PAHs
1AVS139	June 29/99	1A-ext, West wall, north 1/2	6.3	Interim	-	yes, PAHs
1AVS140	June 29/99	1A-ext, West wall, south 1/2	2.6	Interim	-	no
1AVS141	June 29/99	duplicate of 1AVS140	2.6	Interim	-	no
1AVS142	June 29/99	1A-ext, south wall, east 1/2	1	Interim	-	yes, PAHs
1CVS012	May 18/99	floor, center of north half	8.7	Interim	-	yes, acetone
1CVS016	May 18/99	north wall, composite	0	Interim	A615-04	no

Table 17 - Verification Sampling Results for VOC Testing in Areas 1A and 1C.

Contaminants of Concern	1AVS001 Floor, S-W May 17, 1999 PID 5.3 ppm (µg/kg)	1AVS002 1AVS003(dup) ¹ Floor, N-W May 17, 1999 PID 0.4 ppm (µg/kg)	1AVS004 Floor, N-E May 17, 1999 PID 0.3 ppm (µg/kg)	1AVS005 N wall, E ½ May 17, 1999 PID 2.8 ppm (µg/kg)	1AVS007 S wall, Center May 17, 1999 PID 6.7 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	49	14 J	5 J	200 D	490 D	880	64,000
1,2-Dichloroethene (total)	31	2 J	Nd	Nd	22	410	2.8x10 ⁶
Acetone	4 J	5 J	14	11 J	21	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 17 - Sample Control Log for Areas 1A and 1C (cont'd).

Contaminants of Concern	1AVS008 E wall, S ½ May 17, 1999 PID 7 ppm (µg/kg)	1AVS009 Floor S-E May 17, 1999 PID 0.1 ppm (µg/kg)	1AVS010 N wall, W ½ May 17, 1999 PID 0.1 ppm (µg/kg)	1CVS013 1CVS014(dup) ¹ Floor, S ½, 2 ft May 18, 1999 PID 4.3 ppm (µg/kg)	1CVS015 W wall May 18, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	39	165	17 J	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	Nd	92 J	Nd	410	2.8x10 ⁶
Acetone	170	27	50	26 J	38	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	760 D	Nd	1 J	Nd	22 J	1,680	2x10 ⁸
Ethylbenzene	410 D	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	2 J	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 17 - Verification Sampling Results for VOC Testing in Area 1A and 1C (cont'd).

Contaminants of Concern	1CVS017 E wall May 18, 1999 PID 0 ppm (µg/kg)	1CVS048 Floor, N ½, 3.5 ft May 25, 1999 PID 3.5 ppm (µg/kg)	1AVS078 E Ext., N Wall, E½ June 4, 1999 PID 0.1 ppm (µg/kg)	1AVS079 E Ext., E Wall June 4, 1999 PID 0.1 ppm (µg/kg)	1AVS080 E Ext., S Wall June 4, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	110	11 J	330	450	Nd	880	64,000
1,2-Dichloroethene (total)	19 J	39 J	Nd	Nd	Nd	410	2.8x10 ⁶
Acetone	61 J	39 J	92	100	40 J	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	72	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	21 J	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000

1 -- The results reported are the average of the sample and duplicate.

2 -- The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J -- Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B -- Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D -- Indicates compound identified in an analysis at a secondary dilution factor.

Nd -- not detected

Shaded concentrations indicate an exceedance of the clean-up objective

Shaded concentrations indicate an exceedance of the action level



Table 17 - Verification Sampling Results for VOC Testing in Area 1A and 1C (cont'd).

Contaminants of Concern	1AVS081 E Ext., Floor June 4, 1999 PID 0 ppm (µg/kg)	1AVS137 W Ext., N Wall, W ½ June 29, 1999 PID 2.6 ppm (µg/kg)	1AVS138 W Ext., N Wall, E ½ June 29, 1999 PID 5.7 ppm (µg/kg)	1AVS143 W Ext., S Wall, W ½ June 29, 1999 PID 2.5 ppm (µg/kg)	1AVS144 W Ext., Floor, W ½ June 29, 1999 PID 2.6 ppm (µg/kg)	1AVS145 W Ext., Floor, E ½ June 29, 1999 PID 3.2 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	20 J	210	120	110	Nd	Nd	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	Nd	Nd	Nd	Nd	410	2.8x10 ⁶
Acetone	52 J	19 JB	24 JB	20 JB	20 JB	36 JB	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the averages of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

Shaded concentrations indicate an exceedance of the clean-up objective

Shaded concentrations indicate an exceedance of the action level

350 D

Table 17 - Verification Sampling Results for VOC Testing in Area 1A and 1C (cont'd).

Contaminants of Concern	1AVS146 W Ext., Floor, W-Center 1/4 June 29, 1999 PID 4.4 ppm (µg/kg)	1AVS147 W Ext., Floor, E-Center 1/4 June 29, 1999 PID 3.6 ppm (µg/kg)	1AVS208 Final W Ext., N Wall July 12, 1999 PID 0.1 ppm (µg/kg)	1AVS209 Final W Ext., NW Wall July 12, 1999 PID 0 ppm (µg/kg)	1AVS210 Final W Ext., Floor July 12, 1999 PID 0 ppm (µg/kg)	1AVS211 S Ext., Floor July 12, 1999 PID 1.0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	19,000 D	67	Nd	490	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	39 J	Nd	Nd	11 J	410	2.8x10 ⁶
Acetone	20 JB	18 JB	Nd	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 18 - Verification Sampling Results for PAH Testing in Area 1A and 1C.

Contaminants of Concern	1AVS001 Floor, S-W May 17, 1999 PID 5.3 ppm (µg/kg)	1AVS002 1AVS003(dup) ¹ Floor, N-W May 17, 1999 PID 0.4 ppm (µg/kg)	1AVS004 Floor, N-E May 17, 1999 PID 0.3 ppm (µg/kg)	1AVS005 N wall, E ½ May 17, 1999 PID 2.8 ppm (µg/kg)	1AVS007 S wall, Center May 17, 1999 PID 6.7 ppm (µg/kg)	Clean-up Objective (µg/kg)
Acenaphthylene	Nd	Nd	Nd	1,200	Nd	57,600
Anthracene	Nd	Nd	Nd	3,300	Nd	50,000
Benzo(a)anthracene	Nd	Nd	Nd	14,000	220 J	3,860
Benzo(a)pyrene	Nd	22 J	Nd	16,000	290 J	15,400
Benzo(b)fluoranthene	Nd	21 J	Nd	25,000 D	470 J	1,500
Benzo(k)fluoranthene	Nd	Nd	Nd	6,600	170 J	1,500
Chrysene	Nd	Nd	Nd	13,000	270 J	560
Dibenz(a,h)anthracene	Nd	Nd	Nd	2,300	71 J	14
Fluoranthene	Nd	28 J	Nd	38,000 D	350 J	50,000
Fluorene	Nd	Nd	Nd	1,700 J	Nd	50,000
Indeno(1,2,3-cd)pyrene	Nd	Nd	Nd	9,600	300 J	4,480
Naphthalene	Nd	Nd	Nd	2,000 J	Nd	18,200
Phenanthrene	Nd	Nd	Nd	24,000 D	200 J	50,000
Pyrene	Nd	25 J	Nd	25,000 D	270 J	50,000
Total PAHs	Nd	96	Nd	181,700	2,611	25,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

Table 18 - Verification Sampling Results for PAH Testing in Area 1A and 1C (cont'd).

Contaminants of Concern	1AVS008 E wall, S ½ May 17, 1999 PID 7 ppm (µg/kg)	1AVS009 Floor S-E May 17, 1999 PID 0.1 ppm (µg/kg)	1AVS010 N wall, W ½ May 17, 1999 PID 0.1 ppm (µg/kg)	1AVS078 E Ext., N Wall, E ½ June 4, 1999 PID 0.1 ppm (µg/kg)	1AVS079 E Ext., E Wall June 4, 1999 PID 0.1 ppm (µg/kg)	1AVS080 E Ext., S Wall June 4, 1999 PID 0.1 ppm (µg/kg)	Clean-up Objective (µg/kg)
Acenaphthylene	Nd	Nd	Nd	Nd	Nd	Nd	57,600
Anthracene	Nd	Nd	640	2,200	360 J	150 J	50,000
Benzo(a)anthracene	Nd	51 J	2,500	6,900 D	1,200	600	3,860
Benzo(a)pyrene	Nd	77 J	3,200	7,400 D	1,300	430	15,400
Benzo(b)fluoranthene	52 J	94 J	3,500 D	8,700 D	1,900	480	1,500
Benzo(k)fluoranthene	Nd	44 J	1,200	2,700	530	210 J	1,500
Chrysene	Nd	63 J	2,500	7,400 D	1,300	620	560
Dibenz(a,h)anthracene	Nd	Nd	670 J	750	150 J	61 J	14
Fluoranthene	68 J	86 J	4,900 D	12,000 D	2,100	1,200	50,000
Fluorene	Nd	Nd	260 J	1,100	170 J	60 J	50,000
Indeno(1,2,3-cd)pyrene	Nd	70 J	2,100	2,600	520	240 J	4,480
Naphthalene	Nd	Nd	230 J	2,000	340 J	Nd	18,200
Phenanthrene	50 J	47 J	3,200	10,000 D	1,600	750	50,000
Pyrene	59 J	81 J	3,800 D	16,000 D	2,600	1,300	50,000
Total PAHs	229	613	28,700	79,750	14,070	6,101	25,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

Table 18 - Verification Sampling Results for PAH Testing in Area 1A and 1C (cont'd).

Contaminants of Concern	1AVS081 E Ext., Floor June 4, 1999 PID 0 ppm (µg/kg)	1AVS137 W Ext., N Wall, W ½ June 29, 1999 PID 2.6 ppm (µg/kg)	1AVS138 W Ext., N Wall, E ½ June 29, 1999 PID 5.7 ppm (µg/kg)	1AVS143 W Ext., S Wall, W ½ June 29, 1999 PID 2.5 ppm (µg/kg)	1AVS144 W Ext., Floor, W ½ June 29, 1999 PID 2.6 ppm (µg/kg)	1AVS145 W Ext., Floor, E ¼ June 29, 1999 PID 3.2 ppm (µg/kg)	Clean-up Objective (µg/kg)
Acenaphthylene	Nd	Nd	Nd	Nd	Nd	Nd	57,600
Anthracene	Nd	1,800	9,700	Nd	Nd	Nd	50,000
Benzo(a)anthracene	Nd	8,900 D	34,000 D	160 J	Nd	Nd	3,860
Benzo(a)pyrene	Nd	14,000 D	53,000 D	240 J	Nd	Nd	15,400
Benzo(b)fluoranthene	Nd	19,000 D	74,000 D	290 J	Nd	Nd	1,500
Benzo(k)fluoranthene	Nd	4,500	13,000	110 J	Nd	Nd	1,500
Chrysene	Nd	9,200 D	35,000 D	180 J	Nd	Nd	560
Dibenz(a,h)anthracene	Nd	2,100	7,700	Nd	Nd	Nd	14
Fluoranthene	Nd	16,000 D	61,000 D	160 J	Nd	Nd	50,000
Fluorene	Nd	440 J	4,300	Nd	Nd	Nd	50,000
Indeno(1,2,3-cd)pyrene	Nd	6,400 D	27,000 D	140 J	Nd	Nd	4,480
Naphthalene	Nd	390 J	6,500	Nd	Nd	Nd	18,200
Phenanthrene	Nd	7,600 D	42,000 D	93 J	Nd	Nd	50,000
Pyrene	Nd	15,000 D	57,000 D	220 J	Nd	Nd	50,000
Total PAHs	Nd	105,330	424,200	1,593	Nd	Nd	25,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

Table 18 - Verification Sampling Results for PAH Testing in Area 1A and 1C (cont'd).

Contaminants of Concern	1AVS146 W Ext., Floor, W-Center ¼ June 29, 1999 PID 4.4 ppm (µg/kg)	1AVS147 W Ext., Floor, E-Center ¼ June 29, 1999 PID 3.6 ppm (µg/kg)	1AVS208 Final W Ext., N Wall July 12, 1999 PID 0.1 ppm (µg/kg)	1AVS209 Final W Ext., NW Wall July 12, 1999 PID 0 ppm (µg/kg)	1AVS210 Final W Ext., Floor July 12, 1999 PID 0 ppm (µg/kg)	1AVS211 S Ext., Floor July 12, 1999 PID 1.0 ppm (µg/kg)	Clean-up Objective (µg/kg)
Acenaphthylene	Nd	Nd	56 J	Nd	Nd	Nd	57,600
Anthracene	Nd	Nd	1,900 J	300 J	Nd	110 J	50,000
Benzo(a)anthracene	130 J	Nd	12,000 D	4,100 D	88 J	600	3,860
Benzo(a)pyrene	170 J	Nd	20,000 JD	11,000 JD	96 J	880	15,400
Benzo(b)fluoranthene	210 J	Nd	21,000 JD	7,100 JD	110 J	980	1,500
Benzo(k)fluoranthene	69 J	Nd	5,000 JD	1,700 J	41 J	320 J	1,500
Chrysene	130 J	Nd	13,000 D	4,300 D	80 J	580	560
Dibenz(a,h)anthracene	Nd	Nd	3,900 JD	2,500 JD	Nd	190 J	14
Fluoranthene	200 J	Nd	15,000 D	1,900 J	100 J	1,000	50,000
Fluorene	Nd	Nd	760 J	110 J	Nd	Nd	50,000
Indeno(1,2,3-cd)pyrene	91 J	Nd	10,000 JD	3,900 JD	82 J	560 J	4,480
Naphthalene	Nd	Nd	370 J	96 J	Nd	Nd	18,200
Phenanthrene	120 J	Nd	9,000 D	1,600 J	Nd	550	50,000
Pyrene	230 J	Nd	15,000 D	3,500 D	110 J	1,100	50,000
Total PAHs	1,350	Nd	126,986	42,106	707	6,870	25,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

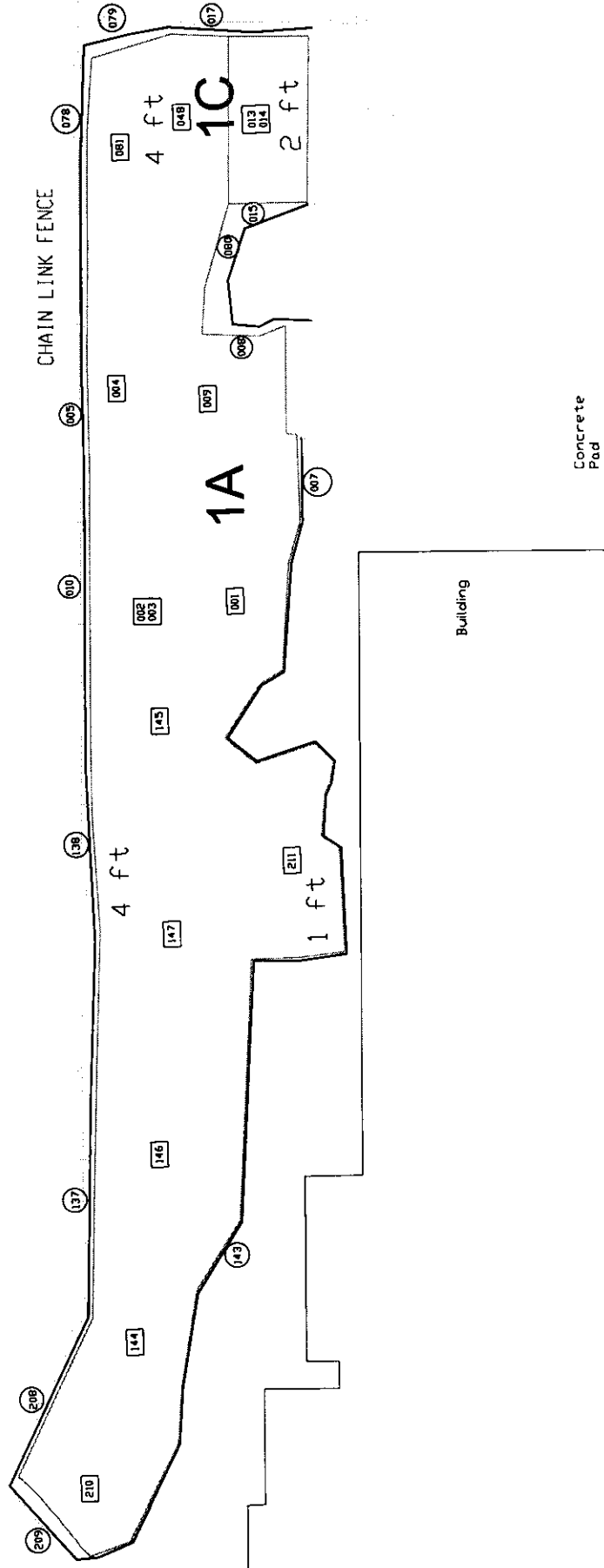
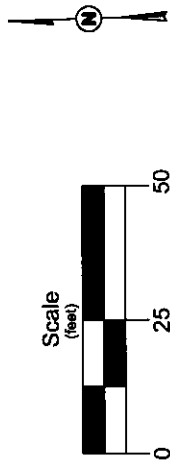


Figure #: 12	Locations of Verification Samples in Areas 1A and 1C		Duke Engineering & Services (Canada), Inc. A Duke Energy Company 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405
	Project #: TM8097	Date: August 18, 1999	

Legend

— Top of bank - actual excavation
 - - - Bottom of bank - actual excavation
 4 ft Approximate Depth BGS

☐ Wall Sample
☐ Floor Sample

Concrete Pad

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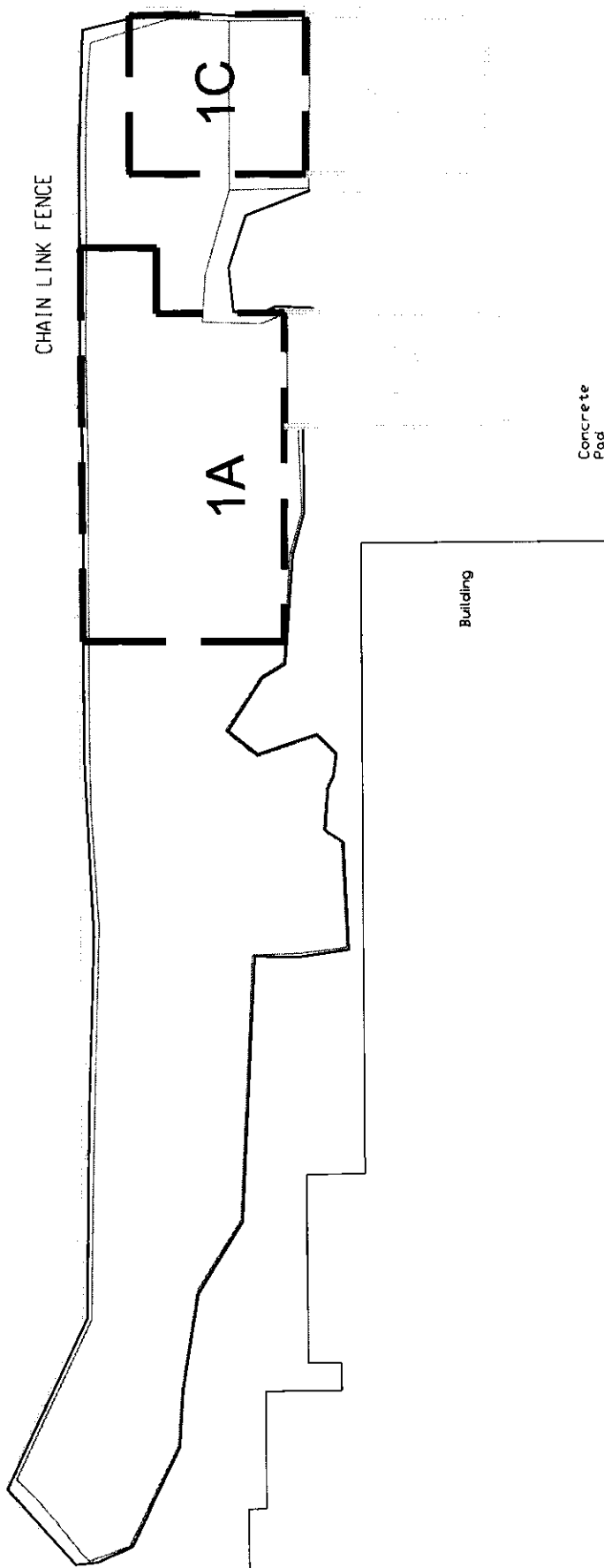
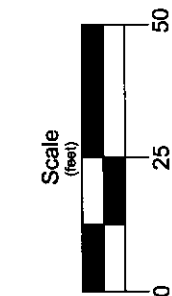


Figure #: 13	Estimated and Actual Extents of Excavation in Areas 1A and 1C			Legend — Estimated excavation extent — Top of bank - actual excavation — Bottom of bank - actual excavation			Duke Engineering & Services (Canada), Inc. A Duke Energy Company 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G8 Phone (905) 513-9400 Fax (905) 513-9405		
Project #: TM8097	Date: August 18, 1999	Drawn by: MSM	File Name: 8097Contamination.dwg						

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3.2. AREA 1B

Area 1B was identified as an area contaminated with VOCs from eight to ten ft BGS. Soil excavated from this area was non-hazardous and disposed at MODERN Landfill. Soil from zero to eight feet BGS was excavated and stockpiled on-site for use as clean backfill. Area 1B was excavated on July 21, 1999.

Eight verification samples and one duplicate sample were collected on July 21, 1999 and submitted to STL for VOCs analysis. Table 19 is the sample control log for area 1B. All of the verification samples had VOC concentrations below the clean-up objectives; therefore, additional excavation was not required. A summary of verification sampling results is provided in Table 20.

A total of 255 tons or approximately 162 yd³ of non-hazardous material was excavated and disposed from area 1B. The total volume of clean and non-hazardous material excavated from area 1B was 460 yd³. Figure 14 and Figure 15 show the locations of verification samples and the estimated and actual extents of excavation in area 1B. The final depth of area 1B was ten ft BGS

Table 19 - Sample Control Log for Area 1B.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
1BVS246	July 21/99	S wall, 8-10 ft	0	Verify	A615-25	no
1BVS247	July 21/99	Floor, S 1/3, 10-11 ft	0	Verify	-	no
1BVS248	July 21/99	West wall, S 1/2, 8-10 ft	0	Verify	-	no
1BVS249	July 21/99	duplicate of 1BVS248	0	Verify	-	no
1BVS250	July 21/99	Floor, center 1/3, 10 ft	0	Verify	-	no
1BVS251	July 21/99	East wall, center, 8-10 ft	0.1	Verify	-	no
1BVS252	July 21/99	Floor, N 1/3, 10 ft	0	Verify	A615-26	no
1BVS253	July 21/99	West wall, N 1/2, 8-10 ft	0	Verify	-	no
1BVS254	July 21/99	North wall, center, 8-10 ft	0	Verify	-	no

Table 20 - Verification Sampling Results for VOC Testing in Area 1B.

Contaminants of Concern	1BVS246 A615-25(split) ² S wall, 8-10 ft July 21, 1999 PID 0 ppm (µg/kg)	1BVS247 Floor, S end, 11 ft July 21, 1999 PID 0 ppm (µg/kg)	1BVS248 1BVS249(dup) ¹ W wall, S ½, 8-10 ft July 21, 1999 PID 0 ppm (µg/kg)	1BVS250 Floor, center, 10 ft July 21, 1999 PID 0 ppm (µg/kg)	1BVS251 E wall, 8-10 ft July 21, 1999 PID 0.1 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	29 J	780	21 J	60	220	880	64,000
1,2-Dichloroethene (total)	16 J	320	8 J	40 J	150	410	2.8x10 ⁶
Acetone	9 J	18 J	23 J	16 J	20 J	200	8x10 ⁶
Vinyl Chloride	2 J	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	1 J	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	6 JB	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DI&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 20 - Verification Sampling Results for VOC Testing in Area 1B (cont'd).

Contaminants of Concern	1BVS252 A615-26(split) ² Floor, N end, 10 ft July 21, 1999 PID 0 ppm (µg/kg)	1BVS253 W wall, N ½, 8-10 ft July 21, 1999 PID 0 ppm (µg/kg)	1BVS254 N wall, 8-10 ft July 21, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	2 J	46 J	Nd	880	64,000
1,2-Dichloroethene (total)	8 J	15 J	Nd	410	2.8x10 ⁶
Acetone	22 J	28 J	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	200	360
Xylenes (total)	25 J	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	6 JB	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

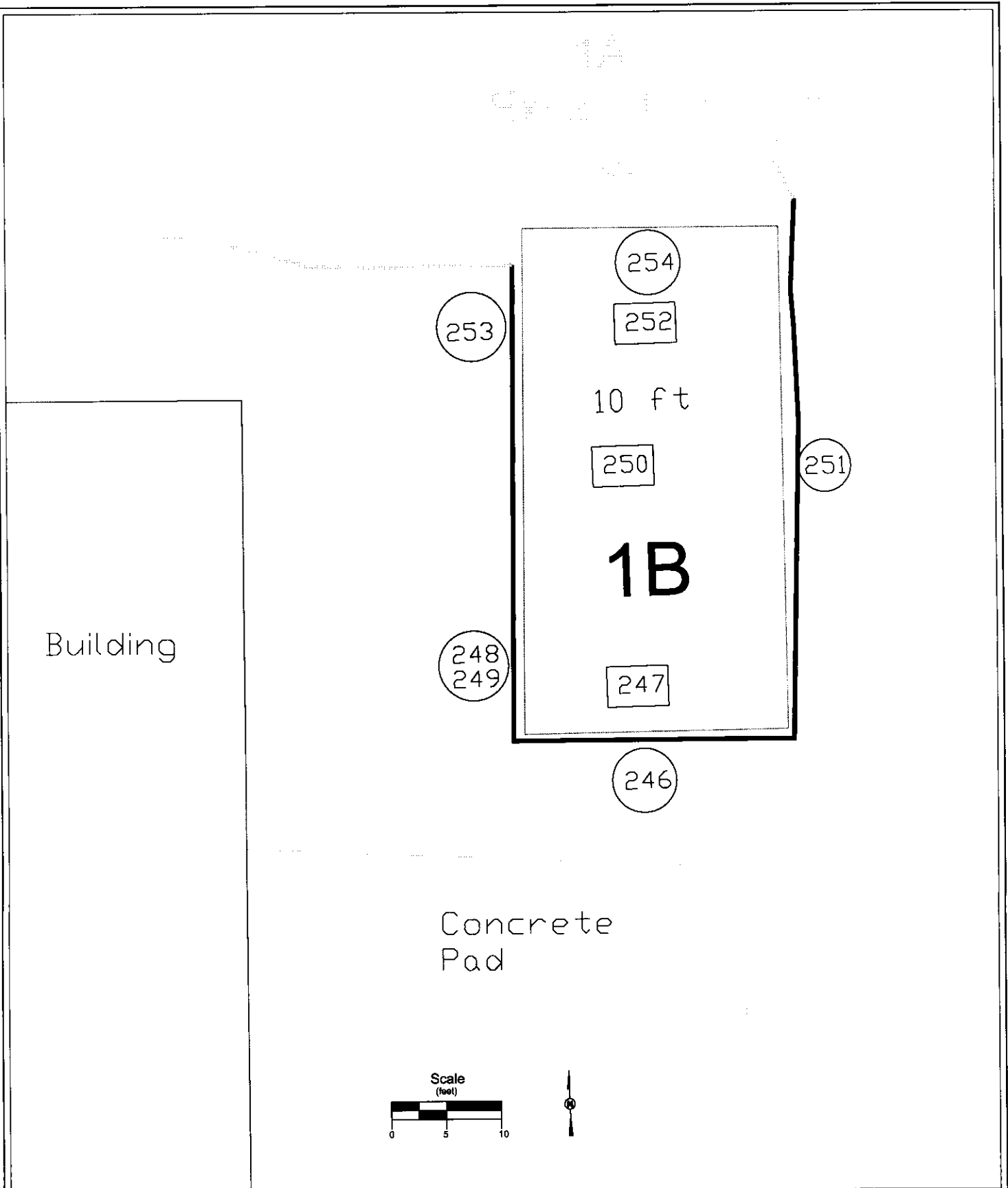


Figure #: 14		Locations of Verification Samples in Areas 1B				 Duke Engineering & Services (Canada), Inc. A Duke Energy Company		
Project #: TM8097	Date: August 18, 1999	Legend Top of bank - actual excavation Bottom of bank - actual excavation 10 ft Approximate Depth BGS Wall Sample Floor Sample				3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9		Phone (905) 513-9400 Fax (905) 513-9405
Drawn by: MSM	File Name: 8097Contamination.dwg							

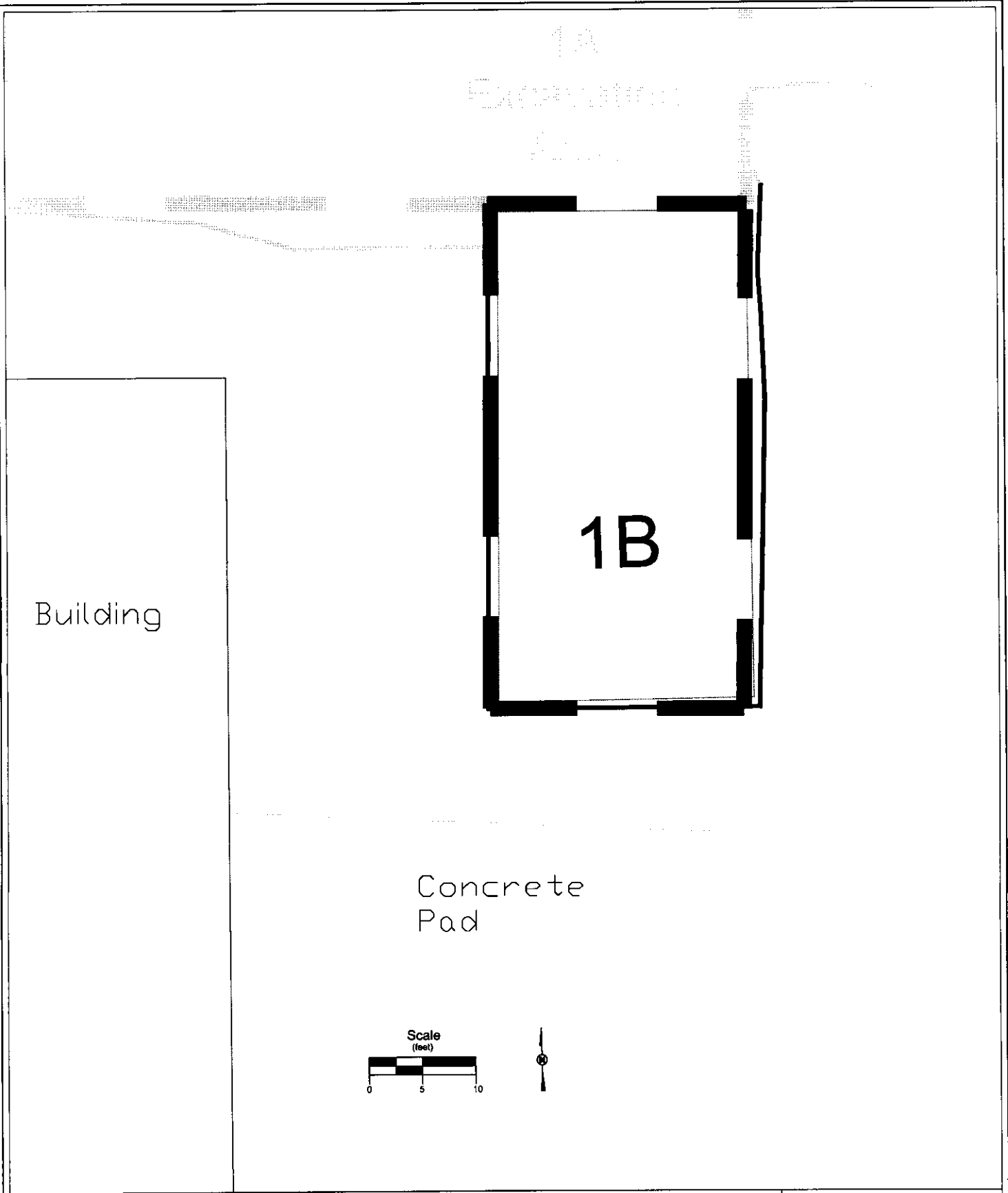


Figure #:
15

**Estimated and Actual Extents of
Excavation in Area 1B**

Project #:
TM8097

Date:
August 18, 1999

Drawn by:
MSM

File Name:
8097Contamination.dwg

Legend

- Estimated excavation extent
- Top of bank - actual excavation
- Bottom of bank - actual excavation

**Duke Engineering
& Services (Canada), Inc.**
A Duke Energy Company

3075 14th Avenue, Phone (905) 513-9400
Suite 207 Markham, Ont. Fax (905) 513-9405
L3R 0G9



3.3. AREAS 1D, 1D-EXTENSION AND 2C

Area 1D was identified as an area contaminated with VOCs from 6 to 8 ft BGS. Excavation in area 1D revealed that contaminated soils extended toward the east beneath an on-site structure formerly used as a solvent storage area. The structure was demolished on June 21, 1999 and area 1D was extended toward the east, eventually joining area 2C. Area 2C was identified as an area contaminated with VOCs from 0 to 24 ft BGS. Action level concentrations of vinyl chloride were identified in the center of the area from 4 to 8 ft BGS. Areas 1D, 1D-extension and 2C were excavated between May 18 and July 20, 1999.

Each bucket of excavated soil was screened with the PID and observations were noted. Stained material that exhibited PID readings greater than 500 ppm was sent directly to CWM. Material that was not stained but had PID readings greater than 500 ppm total VOCs was stockpiled and sampled to determine the appropriate disposal location. Material that was not stained and had PID readings less than 500 ppm total VOCs was sent directly to MODERN's landfill as non-hazardous material.

A total of 13 interim samples, 33 verification samples and 3 duplicate samples were collected from these areas and submitted to STL for VOCs analysis. Table 21 is the sample control log for areas 1D, 1D-extension and 2C. Interim sampling results indicated that soils in area 1D from the floor in the south-east corner exceeded the clean-up objectives requiring additional excavation. Interim sampling results indicated that soils in area 1D-extension from the floor and north wall exceeded the clean-up objectives and/or the action levels requiring additional excavation. Interim sampling results indicated that soils in area 2C from the floor and the east wall exceeded the clean-up objectives requiring additional excavation.

Additional excavations were conducted in an attempt to remove remaining contaminated soil from the area. However, the proximity of the liquid Nitrogen AST limited the lateral extent of excavation toward the west. In addition, a depth of greater than 24 feet could not be reached due to the non-cohesive nature of subsurface materials and the high rate of groundwater seepage into the excavation at depth. The excavation was extended to the greatest attainable depth and lateral extent.

Verification sampling results indicate that soil containing non-hazardous concentrations of VOCs remains in areas 1D-extension and 2C on the floor at a depth of 24 ft (samples *1DVS213*, *1DVS216*, *2CVS176*[dup *2CVS177*], *2CVS179*, *2CVS182*, *2CVS183* and *2CVS189*[dup *2CVS193*]), on the east wall (samples *2CVS180* and *2DVS241*) at 20 ft and on the north wall (sample *1DVS220*) at 20 ft. Approximately 700 yd³ of non-hazardous soil remains on-site in areas 1D-extension and 2C. Additional excavation in these locations was not possible because of significant water seepage, large cobbles and reduced slope stability. No verification samples in area 1D exceeded the clean-up objectives for VOCs.

Verification sampling results also indicate that soil (sample *1DVS213*) containing vinyl chloride above the action level remains in area 1D-extension on the floor at 24 ft below

the former location of the solvent storage area. An estimated 200 ft² of action level soil remains around sample location *IDVS213*. Assuming the depth of action level soil in this area is 6 ft, then approximately 40 yd³ of action level soil remains on-site. Excavating deeper in this area was also not possible as explained above.

A summary of verification sampling results is provided in Table 22.

A total of 7,111 tons or 4,041 yd³ of non-hazardous soil was excavated from areas 1D, 1D-extension and 2C. A total of 1,187.09 tons or 674 yd³ of action level soil was excavated from areas 1D, 1D-extension and 2C. Figure 16 and Figure 17 show the locations of verification samples and the estimated and actual extents of excavation in areas 1D, 1D-extension and 2C.

Backfilling of areas 1D, 1D-extension and 2C was completed on July 22, 1999. The backfill for these areas was attained from 827 Lake Road, 1500 James Avenue and Bridle Path.

Table 21 - Sample Control Log for Areas 1D, 1D-extension and 2C.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
1DVS018	May 18/99	floor, center of east half, 8 ft	6.2	Verify	-	no
1DVS019	May 18/99	floor, south-west quadrant, 8 ft	1.4	Verify	-	no
1DVS020	May 18/99	west wall, center	1.3	Verify	A615-03	no
1DVS121	June 22/99	east wall, center, 6-8 ft	0	Verify	-	no
1DVS245	July 20/99	Floor, SE corner, 24 ft	2.5	Verify	-	no
1DVS212	July 12/99	floor, NE corner, 15-16 ft	0	Verify	-	no
1DVS213	July 13/99	Floor, 24 ft, central	18.5	Verify	-	yes, VC action level
1DVS214	July 13/99	West wall, 5 ft	0	Verify	-	no
1DVS215	July 13/99	West wall, 10 ft	0	Verify	-	no
1DVS216	July 13/99	Floor, 24 ft, SW end of 1D-extension	18	Verify	-	yes, VC
1DVS217	July 13/99	West wall, 20 ft	1.2	Verify	-	no
1DVS219	July 13/99	Floor, NW corner, 24 ft	10	Verify	-	no
1DVS220	July 13/99	North wall, 20 ft, NW corner	0	Verify	-	yes, TCE
1DVS221	July 13/99	South/west wall, 5-12 ft	3	Verify	-	no
2C1DVS157	July 2/99	Floor, 11 ft, NE corner near 2D	1.3	Verify	-	no
2C1DVS158	July 2/99	N wall, 9 ft, NE corner near 2D	0.7	Verify	-	no
2C1DVS162	July 2/99	N wall, 8-10 ft, center of E extension of 1D	8.5	Verify	-	no
2CVS176	July 8/99	Floor, 24 ft, south-west corner	5.6	Verify	A615-17	yes, 1,2-DCE
2CVS177	July 8/99	duplicate of 2CVS176	5.6	Verify	-	yes, 1,2-DCE
2CVS178	July 8/99	South wall, 23 ft, west side	0.8	Verify	-	no
2CVS179	July 8/99	Floor, 24 ft, south-east corner	60	Verify	-	yes, 1,2-DCE
2CVS180	July 8/99	East wall, 20 ft, south side near 2A	74	Verify	-	yes, 1,2-DCE
2CVS181	July 8/99	East wall, 8 ft, south side near 2A	1.5	Verify	-	no
2CVS182	July 8/99	Floor, 24 ft, central west side	12	Verify	-	yes, 1,2-DCE

Table 21 - Sample Control Log for Areas 1D, 1D-extension and 2C (cont'd).

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2CVS183	July 9/99	Floor, 24 ft, NW corner	1.4	Verify	A615-19	yes, 1,2-DCE
2CVS185	July 9/99	west wall, north 1/2, 20-23 ft	0.5	Verify	-	no
2CVS186	July 9/99	west wall, north 1/2, 10-14 ft	0.7	Verify	-	no
2CVS189	July 9/99	Floor, NE corner, 24 ft	6.1	Verify	-	yes, 1,2-DCE,TCE
2CVS190	July 9/99	North wall, east 1/2, 20-23 ft	0.9	Verify	-	no
2CVS193	July 9/99	duplicate of 2CVS189	6.1	Verify	-	yes, 1,2-DCE,TCE
2DVS174	July 8/99	Floor, 8 ft - under previous staining	0.2	Verify	-	no
2DVS175	July 8/99	Floor, 9 ft - under previous staining	2.1	Verify	A615-18	no
2DVS237	July 19/99	Wall, East end, central, 10-12 ft	0.3	Verify	-	no
2DVS241	July 20/99	East end, floor, 20 ft	2.5	Verify	-	yes, 1,2-DCE
2DVS242	July 20/99	East wall 15-20 ft	0	Verify	-	no
1DVS224	July 14/99	Floor, 16 ft, SE corner	0.1	Interim	A615-22	yes, 1,2-DCE
1DVS225	July 14/99	Duplicate of 1DVS224	0.1	Interim	-	yes, 1,2-DCE,TCE
1DVS122	June 23/99	floor, north-east corner, 11 ft	10	Interim	A615-16	yes, 1,2-DCE, TCE
1DVS123	June 23/99	north wall, 7-9 ft	0	Interim	A615-15	yes, acetone
2C1DVS159	July 2/99	Floor, 11 ft, north end, center of 2C	380	Interim	-	yes, VC and TCE action level
2C1DVS160	July 2/99	Floor, 11 ft, center of 2C	105	Interim	-	yes, VC, TCE, 1,2-DCE
2C1DVS161	July 2/99	Floor, 11 ft, NW corner of 2C	10	Interim	-	yes, 1,2-DCE,TCE
2DVS173	July 8/99	Floor, 14 ft - under previous staining	37	Interim	-	yes, 1,2-DCE,TCE
1DVS218	July 13/99	Floor, NW Corner, 20 ft	5.5	Interim	-	no
2CVS184	July 9/99	North wall, west 1/2, 20-23 ft	0.7	Interim	-	no
2CVS187	July 9/99	floor, 20 ft, east side, central	0.5	Interim	-	yes, 1,2-DCE,TCE
2CVS188	July 9/99	East wall, central, 15-20 ft	2.5	Interim	-	yes, 1,2-DCE,TCE
2CVS191	July 9/99	East wall, North 1/3, 20-23 ft	0.9	Interim	-	yes, 1,2-DCE
2CVS192	July 9/99	East wall, North 1/3, 10-12 ft	4.2	Interim	-	yes, 1,2-DCE,TCE

Table 22 - Verification Sampling Results for VOC Testing in Areas 1D, 1D-extension and 2C.

Contaminants of Concern	1DVS018 Floor, E ½, 8 ft May 18, 1999 PID 6.2 ppm (µg/kg)	1DVS019 Floor, S-W Corner, 8 ft May 18, 1999 PID 1.4 ppm (µg/kg)	1DVS020 A615-03(split) ² W wall, Center May 18, 1999 PID 1.3 ppm (µg/kg)	1DVS121 E Wall, Center, 8-10 ft June 22, 1999 PID 0 ppm (µg/kg)	2C1DVS157 1D-Ext., Floor NE Corner, 11 ft July 2, 1999 PID 1.3 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	760	280	11 J	Nd	24 J	880	64,000
1,2-Dichloroethene (total)	260	33 J	Nd	Nd	44 J	410	2.8x10 ⁶
Acetone	13 J	27 J	36 J	20 J	40 JB	200	8x10 ⁶
Vinyl Chloride	14 J	Nd	Nd	Nd	24 J	200	360
Xylenes (total)	Nd	Nd	1 BJ	130	310	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	20 J	13 J	7,700	8x10 ⁶
Toluene	Nd	Nd	1 BJ	Nd	12 J	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	2 J	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

 Shaded concentrations indicate an exceedance of the clean-up objective

 Shaded concentrations indicate an exceedance of the action level

Table 22 - Verification Sampling Results for VOC Testing in Areas 1D, 1D-extension and 2C (cont'd).

Contaminants of Concern	2C1DVS158 1D-Ext., NE Corner, Wall, 9 ft July 2, 1999 PID 0.7 ppm (µg/kg)	2C1DVS162 1D-Ext., N Wall, Center, 8-10 ft July 2, 1999 PID 8.5 ppm (µg/kg)	2DVS174 Floor, 8 ft, July 8, 1999 PID 0.2 ppm (µg/kg)	2DVS175 A615-18(split) ² Floor, 9 ft July 8, 1999 PID 2.1 ppm (µg/kg)	2CVS176 A615-17(split) ³ 2CVS177(dup) ³ Floor, SW Corner, 24 ft July 8, 1999 PID 5.6 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	10 J	96	9 J	94	600 JD	880	64,000
1,2-Dichloroethene (total)	13 J	37 J	Nd	52	2,060 JD	410	2.8x10 ⁶
Acetone	17 JB	39 JB	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	60 J	200	360
Xylenes (total)	73	9 J	Nd	2 J	1 J	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	1 J	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	1 J	1 J	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	6 B	3 JB	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

3 - The results reported are the average of all three samples.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 JD Shaded concentrations indicate an exceedance of the clean-up objective

350 JD Shaded concentrations indicate an exceedance of the action level

Table 22 - Verification Sampling Results for VOC Testing in Areas 1D, 1D-extension and 2C (cont'd).

Contaminants of Concern	2CVS178 S Wall, W Side, 23 ft July 8, 1999 PID 0.8 ppm (µg/kg)	2CVS179 Floor, SW Corner, 24 ft July 8, 1999 PID 60 ppm (µg/kg)	2CVS180 E Wall, S End, 20 ft July 8, 1999 PID 74 ppm (µg/kg)	2CVS181 E Wall, S End, 8 ft July 8, 1999 PID 1.5 ppm (µg/kg)	2CVS182 Floor, W Side, 24 ft July 8, 1999 PID 12 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	390	980	590	Nd	330	880	64,000
1,2-Dichloroethene (total)	220	2,700 D	590	Nd	520	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	25 J	Nd	37 J	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	8 J	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

340 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 22 - Verification Sampling Results for VOC Testing in Areas 1D, 1D-extension and 2C (cont'd).

Contaminants of Concern	2CVS183 A615-19(split) ² Floor, NW Corner, 24 ft July 9, 1999 PID 1.4 ppm (µg/kg)	2CVS185 W Wall, N ½, 20-23 ft July 9, 1999 PID 0.5 ppm (µg/kg)	2CVS186 W Wall, N ½, 10-14 ft July 9, 1999 PID 0.7 ppm (µg/kg)	2CVS189 2CVS193(dup) ¹ Floor, NE Corner, 24 ft July 9, 1999 PID 6.1 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	37 J	15 J	50 J	1,150 D	880	64,000
1,2-Dichloroethene (total)	555 D	22 J	360	1,100 JD	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	38 J	Nd	Nd	Nd	200	360
Xylenes (total)	5 J	Nd	29 J	3 J	1,680	2x10 ⁸
Ethylbenzene	42 J	Nd	79	81	7,700	8x10 ⁶
Toluene	2 J	Nd	14 J	9 J	2,100	20x10 ⁶
Methylene Chloride	5 JB	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 22 - Verification Sampling Results for VOC Testing in Areas 1D, 1D-extension and 2C (cont'd).

Contaminants of Concern	2CVS190 N Wall, E ½, 20-23 ft July 9, 1999 PID 0.9 ppm (µg/kg)	1DVS212 1D-Ext., Floor, NE Corner, 15-16 ft July 12, 1999 PID 0 ppm (µg/kg)	1DVS213 1D-Ext., Floor, Center, 24 ft July 13, 1999 PID 18.5 ppm (µg/kg)	1DVS214 1D-Ext., W Wall, 5 ft July 13, 1999 PID 0 ppm (µg/kg)	1DVS215 1D-Ext., W Wall, 10 ft July 13, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	250	Nd	44 J	Nd	16 J	880	64,000
1,2-Dichloroethene (total)	320	Nd	340	Nd	38 J	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	810	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	32 J	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	350	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	81	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

 350 D Shaded concentrations indicate an exceedance of the clean-up objective

 350 D Shaded concentrations indicate an exceedance of the action level

Table 22 - Verification Sampling Results for VOC Testing in Areas 1D, 1D-extension and 2C (cont'd).

Contaminants of Concern	1DVS216 1D-Ext., Floor, SW Corner, 24 ft July 13, 1999 PID 18 ppm (µg/kg)	1DVS217 1D-Ext., W Wall, 20 ft July 13, 1999 PID 1.2 ppm (µg/kg)	1DVS219 1D-Ext., Floor, NW Corner, 24 ft July 13, 1999 PID 10 ppm (µg/kg)	1DVS220 1D-Ext., N Wall, West End, 20 ft July 13, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	16 J	19 J	760	1,500 D	880	64,000
1,2-Dichloroethene , (total)	410	72	340	350	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	230	Nd	Nd	Nd	200	360
Xylenes (total)	280	Nd	Nd	31 J	1,680	2x10 ⁸
Ethylbenzene	720	6 J	Nd	24 J	7,700	8x10 ⁶
Toluene	82	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

Shaded concentrations indicate an exceedance of the clean-up objective

Shaded concentrations indicate an exceedance of the action level

Table 22 - Verification Sampling Results for VOC Testing in Areas 1D, 1D-extension and 2C (cont'd).

Contaminants of Concern	1DVS221 1D-Ext., SW Wall, 5-12 ft July 13, 1999 PID 3 ppm (µg/kg)	2DVS237 E Wall, 10-12 ft July 19, 1999 PID 0.3 ppm (µg/kg)	2DVS241 E Wall, 20 ft July 20, 1999 PID 2.5 ppm (µg/kg)	2DVS242 E Wall, 15-20 ft July 20, 1999 PID 0 ppm (µg/kg)	1DVS245 1D-Ext., Floor, SE Corner, 24 ft July 20, 1999 PID 2.5 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	38 J	200	21 J	Nd	430	880	64,000
1,2-Dichloroethene (total)	210	110	420	Nd	360	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	Nd	65	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	91	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	45 J	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	280	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	16 J	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

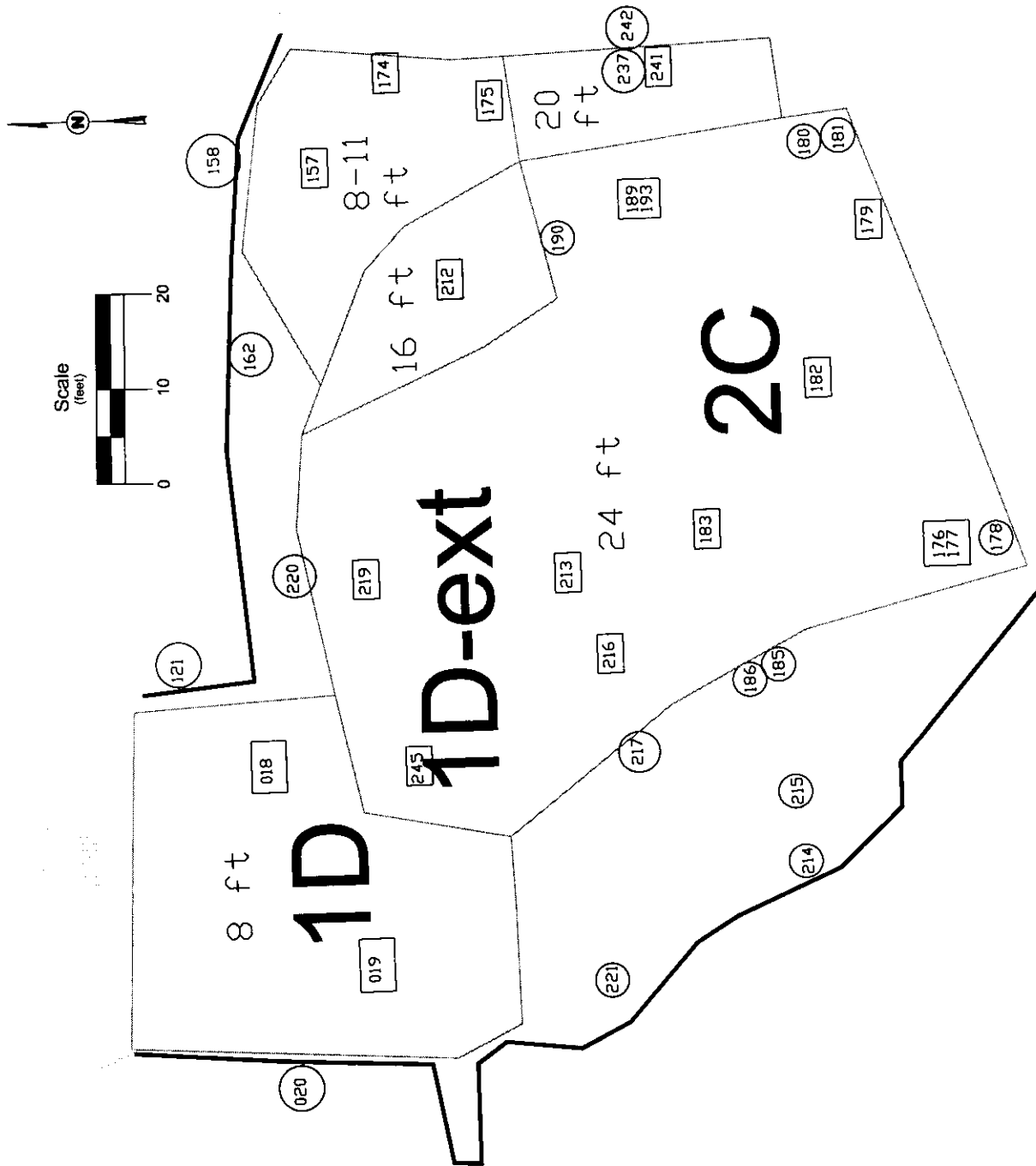


Figure #: 16	Locations of Verification Samples in Areas 1D, 1D-extension, and 2C		Duke Engineering & Services (Canada), Inc. A Division of SNC-Lavalin 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405
	Project #: TM8097	Date: August 18, 1999	

Legend

— Top of bank - actual excavation
 — Bottom of bank - actual excavation
 — Approximate Depth BGS
 16 ft

○ Wall Sample
 □ Floor Sample

100

101

102

103

104

105

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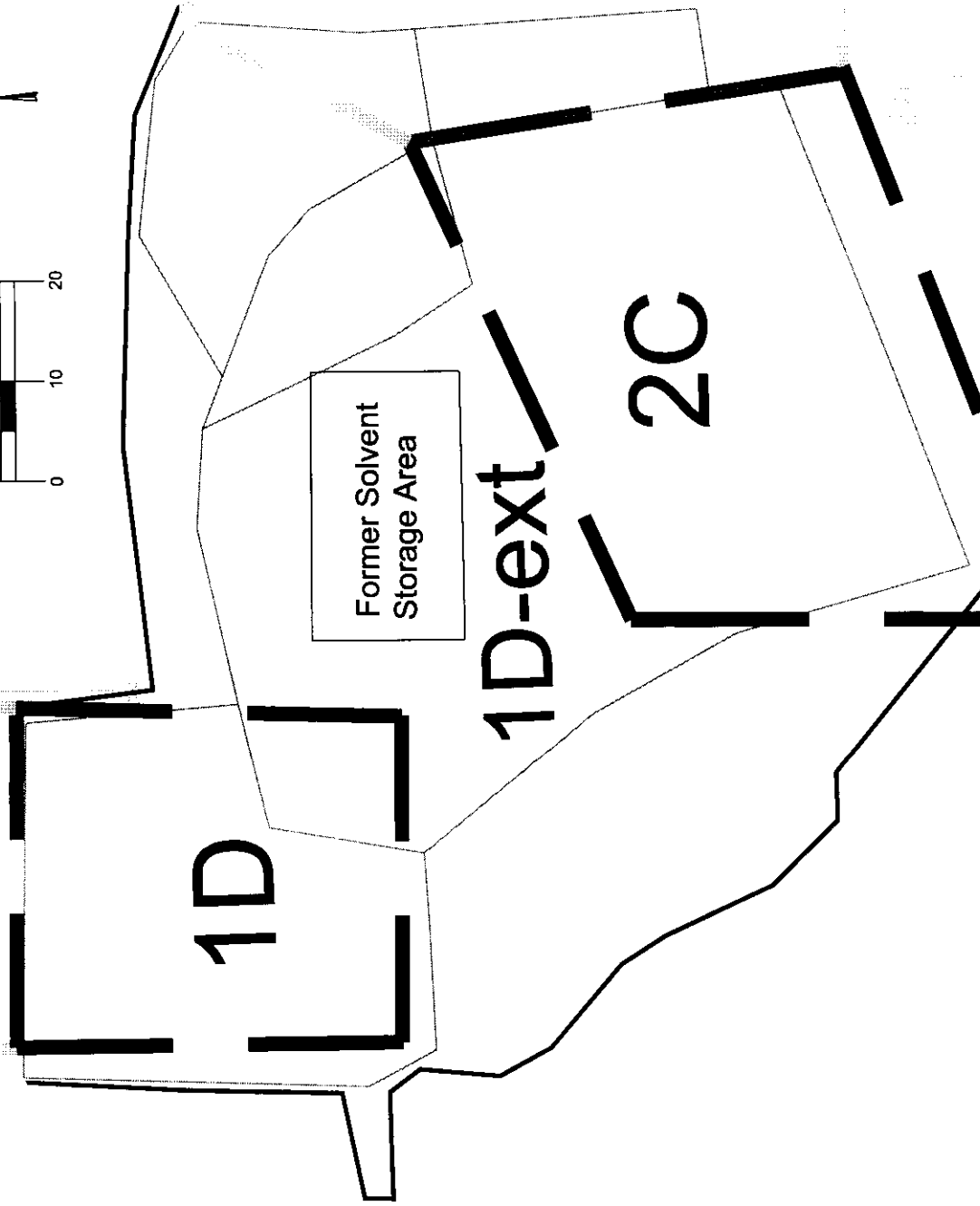
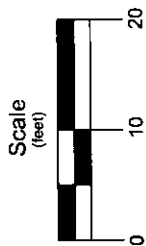


Figure #: 17	Estimated and Actual Extents of Excavation in Areas 1D, 1D-extension, and 2C			Duke Engineering & Services (Canada), Inc. 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405
	Project #: TM8097	Date: August 18, 1999	Drawn by: MSM	

Legend

- Estimated excavation extent
- Top of bank - actual excavation
- Bottom of bank - actual excavation

3.4. AREAS 2A AND 2E

Area 2A was identified as an area contaminated with VOCs from 0 to 16 ft BGS. Area 2E was identified as an area contaminated with VOCs from 0 to 4 ft BGS. Soil excavated from these areas was non-hazardous and disposed at MODERN landfill. Excavation of areas 2A and 2E was conducted between May 19 and July 22, 1999.

A total of 18 interim samples, 74 verification samples and 4 duplicate samples were collected from the areas and submitted to STL for VOCs analysis. Table 23 is the sample control log for areas 2A and 2E. Interim sampling results indicated that soils in area 2A from the south, east and west walls and the floor in the north-east corner and in the west end exceeded the clean-up objectives and/or the action levels requiring additional excavation. Excavation of the south wall of 2A extended into area 2E.

Interim samples 2AVS113, 2AVS153 and 2CID156 exceeded the action level for vinyl chloride. These samples were collected from 10-16 ft BGS on the west wall of 2A near the hydrogen gas cylinders, the liquid nitrogen AST and the intersection of areas 2A and 2C, respectively. Additional material was excavated from these sample locations and sent to CWM.

Verification sampling results indicate that non-hazardous soil remains in area 2A at the east wall from 0 to 16 ft (samples 2AVS042-043, 2AVS052-053 and 2AVS093-098), on the west wall near the hydrogen gas cylinders from 10 to 16 ft (sample 2AVS255), the floor in the north-east corner (sample 2AVS092) at 24 ft and the floor in the west end (samples 2AVS125, 2AVS127 and 2AVS133-136) at 18 to 24 ft. Excavating further east was not possible because the excavation extended to the east property boundary. An estimated 800 ft² of non-hazardous soil remains between 0-16 ft BGS on the east wall. Excavating further west was not possible because of the proximity of the hydrogen gas cylinders. Excavating deeper than 24 ft in the north-east corner was not possible because of significant water seepage, large cobbles and reduced slope stability. The west end of 2A was excavated to 16 feet and four interim samples (samples 2AVS101[dup 2AVS102], 2AVS106, 2AVS110 and 2AVS115) were collected. All four samples exceeded the VOC clean-up objectives. The west end of 2A was then further excavated to 18 feet. In three areas, floor samples were collected at 18 ft (samples 2AVS124, 2AVS129 and 2AVS133) and test pits were installed to 24 feet. Samples 2AVS125-127, 2AVS130-132 and 2AVS134-136 were collected from the test pits at 20, 22 and 24 feet. The verification samples indicated that the west end of area 2A remained above the clean-up objectives at 24 ft BGS in two of the three test pits. Samples 2AVS129-132 were collected from the east half of the west portion of area 2A and did not exceed the VOC clean-up objectives. The west end of area 2A was not excavated to 24 ft due to:

- i) excavation was difficult due to the presence of loose sands, silts, gravels and boulders in this area and there was a significant concern for slope stability,
- ii) the proximity of the hydrogen gas cylinders and the liquid nitrogen AST, and
- iii) significant groundwater seepage that compounded slope stability issues.

The estimated volume of non-hazardous soils remaining in area 2A is 1,100 yd³.

Verification sampling results also indicate that action level soil remains in area 2A on the east wall (sample 2AVS043). An estimated 150 ft² of action level soil remains between 10-16 ft BGS on the east wall around sample location 2AVS043. Excavating further east was not possible because the verification sample was collected at the east property boundary.

The laboratory analytical results for the verification samples are provided in Table 24.

A total of 20,680 tons or 11,074 yd³ of non-hazardous material was excavated from areas 2A and 2E. A total of 57 tons or 32 yd³ of action level soils was excavated from Area 2A. The total volume of clean, non-hazardous and action level material excavated from 2A was 13,369 yd³. Figure 18 and Figure 19 show the locations of verification samples and the estimated and actual extents of excavation in areas 2A and 2E. The final depth of excavation in area 2A ranged between 11 and 24 ft. The depth of area 2E was 11 ft.

Backfilling of areas 2A and 2E started on June 8 and was completed on July 22, 1999. The backfill for these areas was attained from 827 Lake Road and Bridle Path.

Table 23 - Sample Control Log for Areas 2A and 2E.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2AVS033	May 19/99	floor, south-east end, 16 ft	0	Verify	-	no
2AVS034	May 19/99	south wall, 0-5 ft	0	Verify	-	no
2AVS035	May 19/99	south wall, 5-10 ft	1	Verify	-	no
2AVS036	May 19/99	duplicate of 2AVS035	1	Verify	-	no
2AVS037	May 19/99	south wall, 10-16 ft	0.3	Verify	-	no
2AVS038	May 21/99	east wall, 0-5 ft	3.3	Verify	A615-07	no
2AVS039	May 21/99	south wall, 10-16 ft	0	Verify	-	no
2AVS041	May 21/99	south wall, 0-5 ft	0	Verify	-	no
2AVS042	May 24/99	east wall, 5-10 ft	350	Verify	-	yes, 1,2-DCE,TCE
2AVS043	May 24/99	east wall, 10-16 ft	207	Verify	-	yes, VC action level
2AVS047	May 25/99	floor, NE corner, 16 ft	5	Verify	-	no
2AVS050	May 27/99	floor, 10 ft N of light standard	0	Verify	A615-08	no
2AVS052	June 1/99	east wall, 0-5 ft	250	Verify	-	yes, TCE
2AVS053	June 1/99	east wall, 5-10 ft	118	Verify	-	yes, 1,2-DCE
2AVS054	June 1/99	floor, NE corner, 16 ft, near well	10.5	Verify	-	no
2AVS058	June 2/99	10-16 ft, NE corner	4.7	Verify	-	no
2AVS059	June 2/99	5-10 ft, NE corner	5.1	Verify	-	no
2AVS060	June 2/99	0-5 ft, NE corner	2.2	Verify	-	no
2AVS061	June 2/99	10-16 ft, N wall	5.9	Verify	-	no
2AVS062	June 2/99	5-10 ft, N wall	5.5	Verify	-	no
2AVS063	June 2/99	0-5 ft, N wall	2.5	Verify	-	no
2AVS064	June 2/99	floor, E 1/2, 16 ft	2.1	Verify	-	no
2AVS065	June 3/99	east wall of south ext. 5-10 ft	2.5	Verify	-	no

Table 23- Sample Control Log for Areas 2A and 2E (cont'd).

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2AVS066	June 3/99	west wall of south ext. 5-10 ft	4.5	Verify	-	no
2AVS067	June 3/99	floor of south ext., 12 ft	2.5	Verify	-	no
2AVS068	June 3/99	E wall of south ext., S end 5-10 ft	11.9	Verify	-	no
2AVS069	June 3/99	S wall of S ext., 5-10 ft	5	Verify	A615-10	no
2AVS070	June 3/99	floor of S ext., S end, 11 ft	2.7	Verify	-	no
2AVS071	June 3/99	west wall of S ext., S end, 5-10 ft	7.5	Verify	-	no
2AVS072	June 3/99	north wall 10-16 ft	5.2	Verify	-	no
2AVS073	June 3/99	north wall 5-10 ft	2.7	Verify	-	no
2AVS074	June 3/99	north wall 0-5 ft	2.7	Verify	-	no
2AVS075	June 3/99	north wall 10-16 ft	3.5	Verify	-	no
2AVS076	June 3/99	north wall 5-10 ft	2.5	Verify	-	no
2AVS077	June 3/99	north wall 0-5 ft	2.5	Verify	-	no
2AVS084	June 8/99	S wall, 0-5 ft, near intersection of 2A/2B	0	Verify	-	no
2AVS085	June 8/99	S wall, 5-10 ft, near intersection of 2A/2B	0	Verify	-	no
2AVS087	June 8/99	floor, near intersection of 2A/2B	0	Verify	-	no
2AVS089	June 11/99	east wall, 10-16 ft, 20m S of NE pin	0.5	Verify	-	no
2AVS090	June 11/99	east wall, 5-10 ft, 20m S of NE pin	0.6	Verify	-	no
2AVS091	June 11/99	east wall, 0-5 ft, 20m S of NE pin	0.6	Verify	-	no
2AVS092	June 14/99	north east corner, floor at 25 ft	38	Verify	-	yes, TCE
2AVS093	June 14/99	east wall, 10-16 ft	126	Verify	-	yes, acetone, 1,2-DCE, TCE, toluene
2AVS094	June 14/99	east wall, 5-10 ft	53	Verify	-	yes, 1,2-DCE, TCE
2AVS095	June 14/99	east wall, 0-5 ft	150	Verify	-	yes, 1,2-DCE
2AVS096	June 14/99	east wall, 10-16 ft	38	Verify	-	yes, 1,2-DCE

Table 23 - Sample Control Log for Areas 2A and 2E (cont'd).

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2AVS097	June 14/99	east wall, 5-10 ft	85	Verify	-	yes, TCE
2AVS098	June 14/99	east wall, 0-5 ft	49	Verify	-	yes, TCE
2AVS099	June 15/99	north wall, east corner, 10-18 ft	2.1	Verify	-	no
2AVS104	June 18/99	north wall, 10-16 ft, south of 2D	12.4	Verify	-	no
2AVS105	June 18/99	north wall, 4-10 ft, south of 2D	40	Verify	-	no
2AVS107	June 18/99	west wall, 0-5 ft	80	Verify	A615-14	no
2AVS111	June 18/99	west wall, 0-5 ft	14.8	Verify	-	no
2AVS116	June 21/99	north wall, south of 2D, 4-10 ft	1.3	Verify	-	no
2AVS117	June 21/99	north wall, south of 2D, 10-16 ft	0.5	Verify	-	no
2AVS124	June 24/99	floor, SW corner, top of test pit 18 ft	7	Verify	-	no
2AVS125	June 24/99	floor, SW corner, test pit 20 ft	11	Verify	-	yes, TCE
2AVS126	June 24/99	floor, SW corner, test pit 22 ft	6	Verify	-	no
2AVS127	June 24/99	floor, SW corner, test pit 24 ft	7.5	Verify	-	yes, 1,2-DCE
2AVS128	June 24/99	south wall, 10-16 feet, near inter. 2A/2B	3.8	Verify	-	no
2AVS129	June 24/99	floor, E side of west 1/2, top of test pit 18 ft	4.8	Verify	-	no
2AVS130	June 24/99	floor, east side of west 1/2, test pit 20 ft	8	Verify	-	no
2AVS131	June 24/99	floor, east side of west 1/2, test pit 22 ft	0	Verify	-	no
2AVS132	June 24/99	floor, east side of west 1/2, test pit 24 ft	0.3	Verify	-	no
2AVS133	June 24/99	floor, N-center of W 1/2, top of test pit 18 ft	9	Verify	-	yes, 1,2-DCE
2AVS134	June 24/99	floor, north-center of west 1/2, test pit 20 ft	21	Verify	-	yes, 1,2-DCE
2AVS135	June 24/99	floor, north-center of west 1/2, test pit 24 ft	13.5	Verify	-	yes, 1,2-DCE
2AVS136	June 24/99	duplicate of 2AVS135	13.5	Verify	-	yes, 1,2-DCE
2AVS149	July 1/99	W wall, near hydrogen tanks, 5-10 ft	7.6	Verify	-	no

Table 23 - Sample Control Log for Areas 2A and 2E (cont'd).

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2AVS222	July 13/99	West wall, 10-16 ft	2.5	Verify	-	no
2AVS223	July 13/99	West wall, 5-10 ft	0	Verify	-	no
2AVS234	July 15/99	West wall, 5-10 ft	0.7	Verify	-	no
2AVS235	July 15/99	West wall, 10-16 ft	3	Verify	-	no
2AVS236	July 15/99	Floor, 16 ft at east side of nitrogen tank	1	Verify	-	no
2AVS255	July 22/99	West Wall, at north H2 tank fence, 10-16 ft	0	Verify	A615-27	yes, TCE
2EVS088	June 11/99	east wall of south ext. 0-4 ft	0.5	Verify	-	no
2AVS040	May 21/99	south wall, 5-10 ft	45	Interim	-	yes, 1,2-DCE
2AVS046	May 25/99	floor, north-east corner, 20 ft	15	Interim	-	yes, 1,2-DCE, TCE
2AVS055	June 1/99	north wall, 12-16 ft, NE corner	10.5	Interim	-	yes, TCE
2AVS086	June 8/99	south wall, 10-16 feet, near inter. 2A/2B	3.7	Interim	-	yes, 1,2-DCE
2AVS101	June 17/99	floor, west end, 16 feet	30	Interim	A615-12	yes, VC, 1,2-DCE
2AVS102	June 17/99	duplicate of 2AVS101	30	Interim	-	yes, VC, 1,2-DCE
2AVS103	June 18/99	S wall, 10-16 ft, near intersection of 2A/2B	4.8	Interim	-	yes, 1,2-DCE
2AVS106	June 18/99	floor, north-west corner, south of 2D	41.7	Interim	-	yes, 1,2-DCE, TCE
2AVS108	June 18/99	west wall, 5-10 ft	40	Interim	-	yes, 1,2-DCE
2AVS109	June 18/99	west wall, 10-16 ft	40	Interim	A615-13	yes, VC, 1,2-DCE, TCE
2AVS110	June 18/99	floor, south-west corner	35	Interim	-	yes, VC, 1,2-DCE, TCE
2AVS112	June 18/99	west wall, 5-10 ft	60	Interim	-	yes, VC action level
2AVS113	June 18/99	west wall, 10-16 ft	19	Interim	-	yes, VC action level
2AVS114	June 18/99	duplicate of 2AVS112	60	Interim	-	yes, 1,2-DCE
2AVS115	June 21/99	floor, west end, central 16 ft	7	Interim	-	yes, 1,2-DCE
2AVS150	July 1/99	W wall, near hydrogen tanks, 10-16 ft	7	Interim	-	yes, VC, 1,2-DCE, TCE

Table 23 - Sample Control Log for Areas 2A and 2E (cont'd).

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2AVS153	July 1/99	W wall, near nitrogen tank, 10-16 ft	18	Interim	-	yes, VC action level
2AVS154	July 1/99	W wall, near nitrogen tank, 5-10 ft	20	Interim	-	yes, 1,2-DCE
2C1DVS155	July 2/99	W wall, 5-10 ft, intersection of 2A and 2C	3.5	Interim	-	no
2C1DVS156	July 2/99	W wall, 10-15 ft, intersection of 2A and 2C	0.5	Interim	-	yes, VC action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E.

Contaminants of Concern	2AVS033 Floor, SE Corner, 16 ft May 19, 1999 PID 0 ppm (µg/kg)	2AVS034 S Wall, 0-5 ft May 19, 1999 PID 0 ppm (µg/kg)	2AVS035 2AVS036(dup) ¹ S Wall, 5-10 ft May 19, 1999 PID 1 ppm (µg/kg)	2AVS037 S Wall, 10-16 ft May 19, 1999 PID 0.3 ppm (µg/kg)	2AVS038 A615-07(split) ² E Wall, 0-5 ft May 21, 1999 PID 3.3 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	15 J	38 J	223	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	3 J	11 J	155	410	2.8x10 ⁶
Acetone	36 J	23 J	11 J	15 J	14 JB	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	1 J	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	1 JB	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	1 JB	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	2 J	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS039 S Wall, 10-16 ft May 21, 1999 PID 0 ppm (µg/kg)	2AVS041 S Wall, 0-5 ft May 21, 1999 PID 0 ppm (µg/kg)	2AVS042 E Wall, 5-10 ft May 24, 1999 PID 350 ppm (µg/kg)	2AVS043 E Wall, 10-16 ft May 24, 1999 PID 207 ppm (µg/kg)	2AVS047 Floor, NE Corner, 16 ft May 25, 1999 PID 5 ppm (µg/kg)	2AVS050 A615-08 (split) ² Floor, Central, 16 ft May 27, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	34 J	89	2,000 D	11,000 D	Nd	3 J	880	64,000
1,2-Dichloroethene (total)	90	190	4,400 D	24,000 D	Nd	8	410	2.8x10 ⁶
Acetone	22 JB	23 JB	20 J	120 B	15 J	23 J	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	110	1,100	Nd	2 J	200	360
Xylenes (total)	Nd	Nd	620	8,600 D	Nd	2 BJ	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	230	2,700 D	Nd	32 J	7,700	8x10 ⁶
Toluene	Nd	Nd	480	4,200 D	Nd	2 BJ	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	34 J	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS052 E Wall, 0-5 ft June 1, 1999 PID 250 ppm (µg/kg)	2AVS053 E Wall, 5-10 ft June 1, 1999 PID 118 ppm (µg/kg)	2AVS054 Floor, NE Corner, 16 ft June 1, 1999 PID 10.5 ppm (µg/kg)	2AVS058 Wall, NE Corner, 10-16 ft June 2, 1999 PID 4.7 ppm (µg/kg)	2AVS059 Wall, NE Corner, 5-10 ft June 2, 1999 PID 5.1 ppm (µg/kg)	2AVS060 Wall, NE Corner, 0-5 ft June 2, 1999 PID 2.2 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	14,000	800	870	51 J	120	Nd	880	64,000
1,2-Dichloroethene (total)	250	590	230	11 J	26 J	Nd	410	2.8x10 ⁶
Acetone	200 B	29 JB	30 JB	28 JB	26 JB	62 B	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	180	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	29 J	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	300	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS061 N Wall, 10-16 ft June 2, 1999 PID 5.9 ppm (µg/kg)	2AVS062 N Wall, 5-10 ft June 2, 1999 PID 5.5 ppm (µg/kg)	2AVS063 N Wall, 0-5 ft June 2, 1999 PID 2.5 ppm (µg/kg)	2AVS064 Floor, E ½, 16 ft June 2, 1999 PID 2.1 ppm (µg/kg)	2AVS065 S Ext., E Wall, 5-10 ft June 3, 1999 PID 2.5 ppm (µg/kg)	2AVS066 S Ext., W Wall, 5-10 ft June 3, 1999 PID 4.5 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	350	16 J	110	Nd	Nd	18 J	880	64,000
1,2-Dichloroethene (total)	7 J	Nd	Nd	Nd	Nd	57 J	410	2.8x10 ⁶
Acetone	41 JB	35 JB	64 B	30 JB	Nd	12 J	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS067 S Ext., Floor, 12 ft June 3, 1999 PID 2.5 ppm (µg/kg)	2AVS068 S Ext., S end, E Wall, 5-10 ft June 3, 1999 PID 11.9 ppm (µg/kg)	2AVS069 A615-10 (split) ² S Ext., S Wall, 5-10 ft June 3, 1999 PID 5 ppm (µg/kg)	2AVS070 S Ext., S end Floor, 11 ft June 3, 1999 PID 2.7 ppm (µg/kg)	2AVS071 S Ext., S end W Wall, 5-10 ft June 3, 1999 PID 7.5 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	230	66	9 J	46 J	15 J	880	64,000
1,2-Dichloroethene (total)	Nd	100	29 J	38 J	57 J	410	2.8x10 ⁶
Acetone	15 J	8 J	Nd	14 J	Nd	200	8x10 ⁶
Vinyl Chloride	14 J	Nd	Nd	14 J	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	1 J	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	3 BJ	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS072 N Wall, 10-16 ft June 3, 1999 PID 5.2 ppm (µg/kg)	2AVS073 N Wall, 5-10 ft June 3, 1999 PID 2.7 ppm (µg/kg)	2AVS074 N Wall, 0-5 ft June 3, 1999 PID 2.7 ppm (µg/kg)	2AVS075 N Wall, 10-16 ft June 3, 1999 PID 3.5 ppm (µg/kg)	2AVS076 N Wall, 5-10 ft June 3, 1999 PID 2.5 ppm (µg/kg)	2AVS077 N Wall, 0-5 ft June 3, 1999 PID 2.5 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	39 J	Nd	18 J	62	Nd	7 J	880	64,000
1,2-Dichloroethene (total)	120	Nd	11 J	Nd	Nd	Nd	410	2.8x10 ⁶
Acetone	26 JB	Nd	78	12 J	11 J	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

J - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected



Shaded concentrations indicate an exceedance of the clean-up objective

Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS084 S Wall, 0-5 ft June 8, 1999 PID 0 ppm (µg/kg)	2AVS085 S Wall, 5-10 ft June 8, 1999 PID 0 ppm (µg/kg)	2AVS087 Floor, Central June 8, 1999 PID 0 ppm (µg/kg)	2EVS088 E Wall, S Ext. of 2A, near BH S-11, 0-4' June 11, 1999 PID 0.5 ppm (µg/kg)	2AVS089 E Wall, 10-16 ft June 11, 1999 PID 0.5 ppm (µg/kg)	2AVS090 E Wall, 5-10 ft June 11, 1999 PID 0.6 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	24 J	Nd	Nd	Nd	880	64,000
1,2-Dichloroethene (total)	Nd	10 J	20 J	Nd	Nd	Nd	410	2.8x10 ⁶
Acetone	11 J	14 J	15 J	31 JB	30 JB	16 JB	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS091 E Wall, 0-5 ft June 11, 1999 PID 0.6 ppm (µg/kg)	2AVS092 Floor, NE Corner, 25 ft June 14, 1999 PID 38 ppm (µg/kg)	2AVS093 E Wall, 10-16 ft June 14, 1999 PID 126 ppm (µg/kg)	2AVS094 E Wall, 5-10 ft June 14, 1999 PID 53 ppm (µg/kg)	2AVS095 E Wall, 0-5 ft June 14, 1999 PID 150 ppm (µg/kg)	2AVS096 E Wall, 10-16 ft June 14, 1999 PID 38 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	9 J	3,400 D	19,000 D	2,400 D	180 J	590	880	64,000
1,2-Dichloroethene (total)	Nd	370	780 D	2,400 D	2,500 D	4,500 D	410	2.8x10 ⁶
Acetone	18 JB	Nd	310	95	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	240	350	300 J	14 J	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	53 J	340	94 J	9 J	7,700	8x10 ⁶
Toluene	Nd	100	2,400 D	140	11 J	240	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	8 J	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSD/E/C split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS097 E Wall, 5-10 ft June 14, 1999 PID 85 ppm (µg/kg)	2AVS098 E Wall, 0-5 ft June 14, 1999 PID 49 ppm (µg/kg)	2AVS099 N Wall, E Corner 10-18 ft June 15, 1999 PID 2.1 ppm (µg/kg)	2AVS104 N Wall, 10-16 ft June 18, 1999 PID 12.4 ppm (µg/kg)	2AVS105 N Wall, 4-10 ft June 18, 1999 PID 40 ppm (µg/kg)	2AVS107 A615-14(split) ² W Wall, 0-5 ft June 18, 1999 PID 80 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	1,100	5,600 D	24 J	150	540	Nd	880	64,000
1,2-Dichloroethene (total)	59 J	180	Nd	120	160	385	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	17 JB	12 JB	26 JB	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	67	Nd	72 J	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	11 J	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	31 B	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS111 W Wall, 0-5 ft June 18, 1999 PID 14.8 ppm (µg/kg)	2AVS116 N Wall, 4-10 ft June 21, 1999 PID 1.3 ppm (µg/kg)	2AVS117 N Wall, 10-16 ft June 21, 1999 PID 0.5 ppm (µg/kg)	2AVS124 Floor, SW Corner of W ½, 18 ft June 24, 1999 PID 7 ppm (µg/kg)	2AVS125 Floor, SW Corner of W ½, 20 ft June 24, 1999 PID 11 ppm (µg/kg)	2AVS126 Floor, SW Corner of W ½, 22 ft June 24, 1999 PID 6 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	180	14 J	Nd	340	1,000	62	880	64,000
1,2-Dichloroethene (total)	150	18 J	Nd	34 J	92	190	410	2.8x10 ⁶
Acetone	20 JB	13 JB	15 JB	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	43 J	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	28 J	43 J	57	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	6 J	7 J	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	9 J	8 J	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS127 Floor, SW Corner of W 1/2, 24 ft June 24, 1999 PID 7.5 ppm (µg/kg)	2AVS128 S Wall, 10-16 ft June 24, 1999 PID 3.8 ppm (µg/kg)	2AVS129 Floor, E side of W 1/2, 18 ft June 24, 1999 PID 4.8 ppm (µg/kg)	2AVS130 Floor, E side of W 1/2, 20 ft June 24, 1999 PID 8 ppm (µg/kg)	2AVS131 Floor, E side of W 1/2, 22 ft June 24, 1999 PID 0 ppm (µg/kg)	2AVS132 Floor, E side of W 1/2, 24 ft June 24, 1999 PID 0.3 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	260	Nd	510	180	15 J	27 J	880	64,000
1,2-Dichloroethene (total)	440	78	240	110	71	180	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	Nd	Nd	5	200	8x10 ⁶
Vinyl Chloride	17 J	18 J	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	8 J	Nd	Nd	10 J	43 J	6 J	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	5 J	6 J	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected


 Shaded concentrations indicate an exceedance of the clean-up objective


 Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS133 Floor, N end of W 1/2, 18 ft June 24, 1999 PID 9 ppm (µg/kg)	2AVS134 Floor, N end of W 1/2, 20 ft June 24, 1999 PID 21 ppm (µg/kg)	2AVS135 2AVS136 (dup) ¹ Floor, N end of W 1/2, 24 ft June 24, 1999 PID 13.5 ppm (µg/kg)	2AVS149 W Wall, 5-10 ft July 1, 1999 PID 7.6 ppm (µg/kg)	2AVS222 W Wall, 10-16 ft July 13, 1999 PID 2.5 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	870	220	72 J	28 J	340	880	64,000
1,2-Dichloroethene (total)	620	730	675 JD	180	330	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	66	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	41 J	30	56 J	Nd	200	360
Xylenes (total)	64	Nd	Nd	Nd	110	1,680	2x10 ⁸
Ethylbenzene	9 J	Nd	Nd	Nd	48 J	7,700	8x10 ⁶
Toluene	13 J	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	6 J	6 J	3 J	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 24 - Verification Sampling Results for VOC Testing in Areas 2A and 2E (cont'd).

Contaminants of Concern	2AVS223 W Wall, 5-10 ft July 13, 1999 PID 0 ppm (µg/kg)	2AVS234 W Wall, 5-10 ft July 15, 1999 PID 0.7 ppm (µg/kg)	2AVS235 W Wall, 10-16 ft July 15, 1999 PID 3 ppm (µg/kg)	2AVS236 Floor, 16 ft July 15, 1999 PID 1 ppm (µg/kg)	2AVS255 A615-27(split) ² W Wall, 10-16 ft July 22, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	Nd	Nd	2,190 D	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	64	200	81	410	2.8x10 ⁶
Acetone	Nd	63 B	17 JB	40 JB	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	28 J	9 J	200	360
Xylenes (total)	Nd	190	23 J	9 J	2 J	1,680	2x10 ⁸
Ethylbenzene	Nd	23 J	50 J	63	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	2 J	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	5 BJ	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D

350 D

Shaded concentrations indicate an exceedance of the clean-up objective

Shaded concentrations indicate an exceedance of the action level

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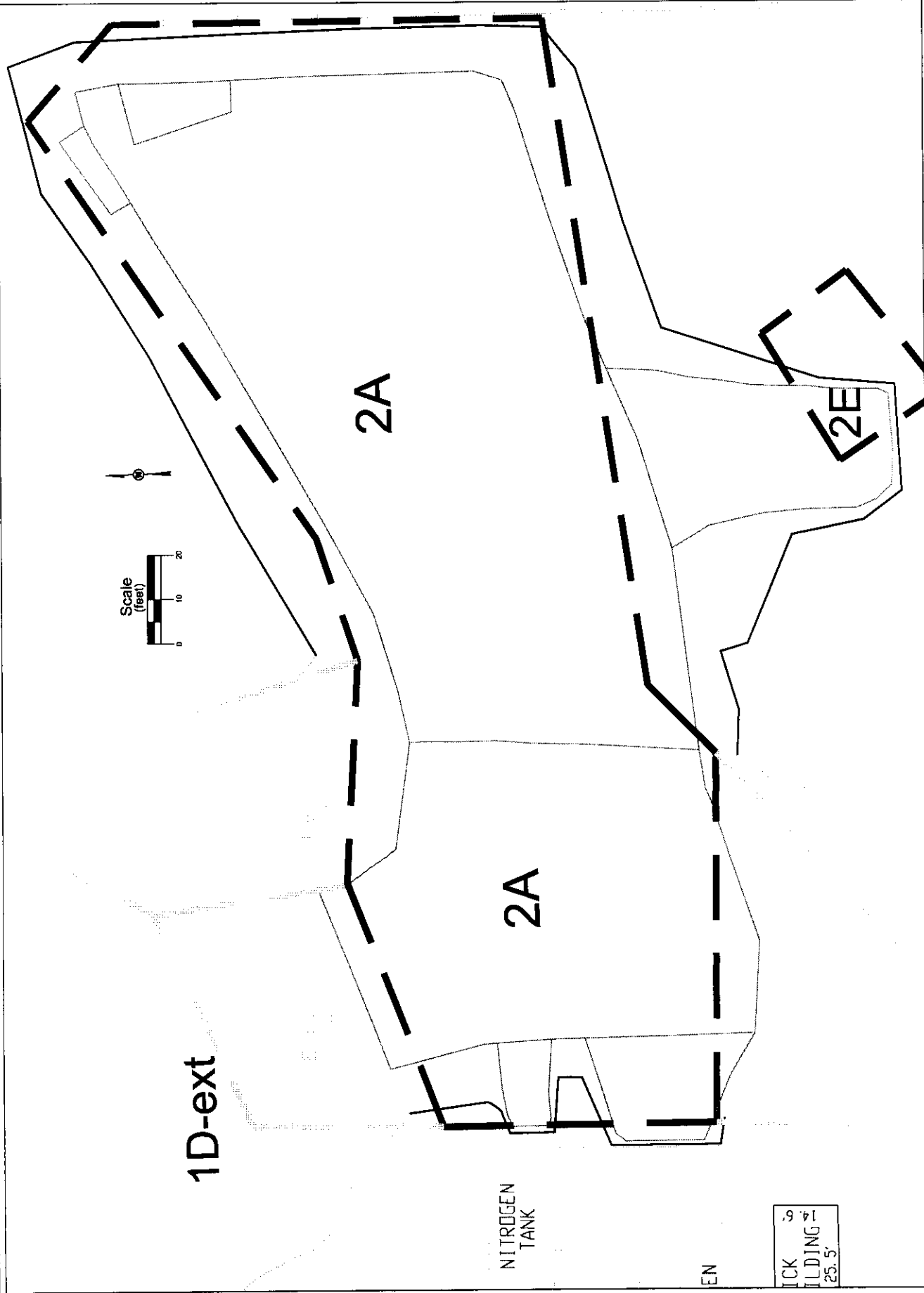
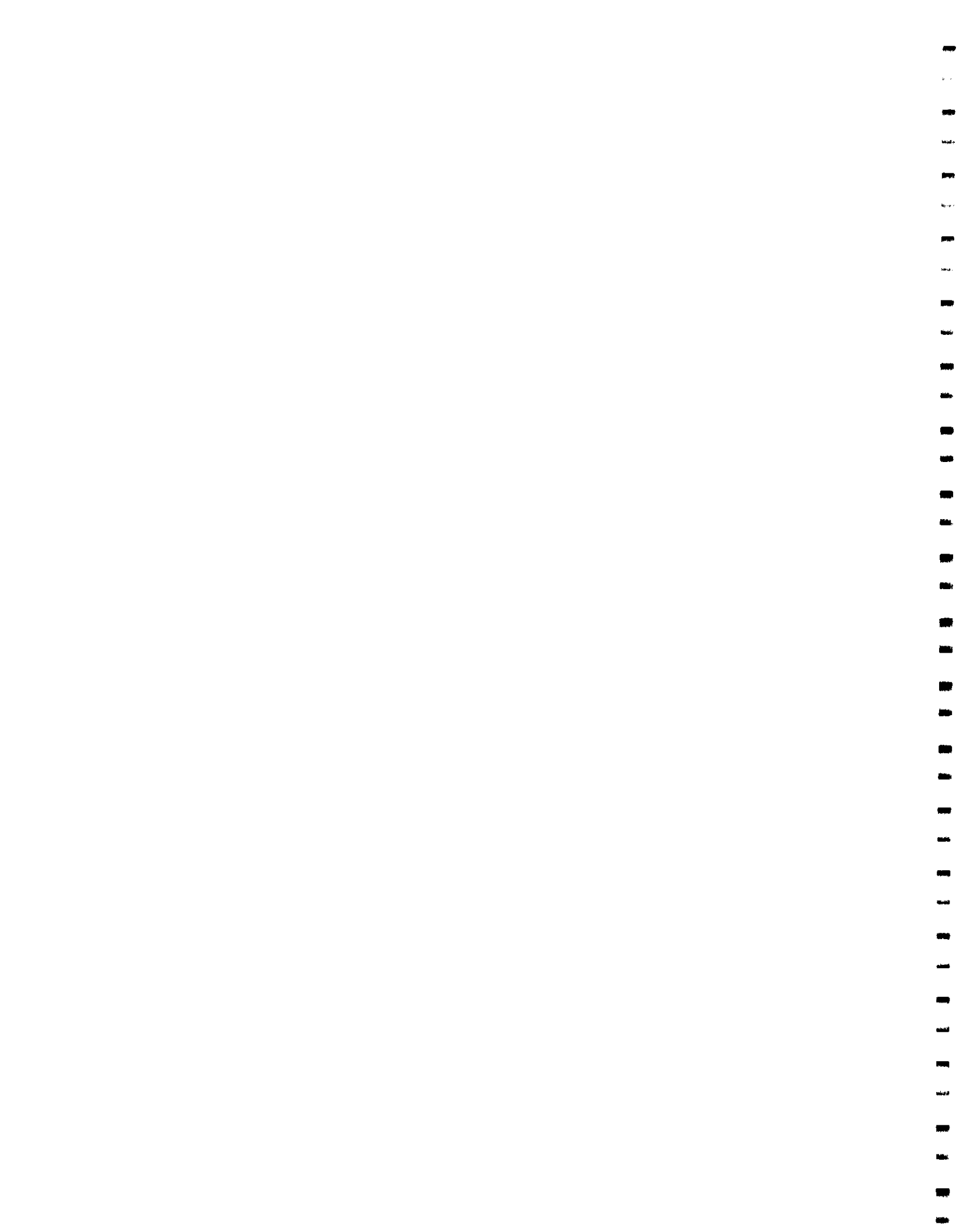


Figure #: 19 Project #: TM8097	Estimated and Actual Extents of Excavation in Areas 2A and 2E Date: August 18, 1999 Drawn by: MSM File Name: 8097Contamination.dwg	Legend --- Estimated excavation extent --- Top of bank - actual excavation --- Bottom of bank - actual excavation	Duke Engineering & Services (Canada), Inc. 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405
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3.5. AREA 2B

Area 2B was identified as an area contaminated with VOCs from 10 to 12 ft BGS. Soil excavated from this area was non-hazardous and disposed at MODERN landfill. Soil from 0 to 10 ft BGS was excavated and stockpiled on-site for use as clean backfill. Excavation of area 2B was conducted between July 7 and August 4, 1999.

Interim sampling results indicated that soils from the floor, west and south walls contained VOC contaminant concentrations above the clean-up objectives and required further excavation. A total of 12 interim samples, 14 verification samples and 3 duplicate samples were collected from area 2B and submitted to STL for VOCs analysis. Table 25 is the sample control log for area 2B. All of the verification samples had VOC concentrations below the clean-up objectives. A summary of verification sampling results is provided in Table 26. A total of 2,388 tons or approximately 1,294 yd³ of non-hazardous material was excavated from area 2B. The total volume of clean and non-hazardous material excavated from area 2B was approximately 2,074 yd³. Figure 20 and Figure 21 show the locations of verification samples and the estimated and actual extents of excavation in area 2B. The final depth of area 2B ranged between 13.5 and 16 ft BGS.

Area 2B was backfilled on August 4 and 5, 1999 with material attained from 1500 James Avenue and Harold and Pletcher Roads.

Table 25 - Sample Control Log for Area 2B.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2BVS163	July 7/99	Floor, north west corner, 13.5 ft	3.5	Verify	-	no
2BVS164	July 7/99	north wall, 10-13 ft	10	Verify	-	no
2BVS226	July 15/99	Floor, west end, 15 ft	0.4	Verify	-	no
2BVS227	July 15/99	South wall, west end, 10-13 ft	0.3	Verify	A615-23	no
2BVS228	July 15/99	Duplicate of 2BVS226	0.4	Verify	-	no
2BVS229	July 15/99	Floor, south central, 16 ft	1.5	Verify	-	no
2BVS230	July 15/99	South wall, center, 10-14 ft	0	Verify	-	no
2BVS231	July 15/99	Floor, east side, 16 ft	1.7	Verify	A615-24	no
2BVS256	July 22/99	West Wall, at north brick bldg face, 10-16 ft	0.6	Verify	-	no
2BVS258	August 4/99	South extension, east wall, 10-14 ft	8.8	Verify	-	no
2BVS259	August 4/99	South extension, west wall, 10-14 ft	1.3	Verify	-	no
2BVS260	August 4/99	South extension, south wall, center, 10-14 ft	2	Verify	-	no
2BVS261	August 4/99	South extension, floor composite, 16 ft	0	Verify	-	no
2BVS262	August 4/99	South extension, South wall, west side, 10-14 ft	0	Verify	-	no
2BVS263	August 4/99	South extension, South wall, east side, 10-14 ft	9.5	Verify	-	no
2BVS151	July 1/99	S wall, 10-12 ft	4.1	Interim	-	yes, 1,2-DCE
2BVS152	July 1/99	Floor, 13 ft	5	Interim	-	yes, 1,2-DCE
2BVS165	July 7/99	west wall, 10-13 ft	7	Interim	-	yes, VC, 1,2-DCE
2BVS166	July 7/99	South wall 10-12 ft	3	Interim	-	yes, TCE
2BVS167	July 8/99	Floor, south central, 14 ft	4	Interim	-	yes, 1,2-DCE, TCE
2BVS168	July 8/99	Floor, north central, 14 ft	1	Interim	-	yes, 1,2-DCE
2BVS169	July 8/99	South wall, center, 10-12 ft	0.8	Interim	-	yes, 1,2-DCE
2BVS170	July 8/99	Floor, 14 ft	3.8	Interim	-	yes, 1,2-DCE, TCE

Table 25 - Sample Control Log for Area 2B (cont'd).

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2BVS171	July 8/99	S wall, 10-13 ft	4	Interim	-	yes, 1,2-DCE, TCE
2BVS172	July 8/99	duplicate of 2BVS171	4	Interim	-	yes, 1,2-DCE, TCE
2BVS232	July 15/99	South wall, east side, 10-14 ft	0.3	Interim	-	yes, 1,2-DCE
2BVS233	July 15/99	duplicate of 2BVS232	0.3	Interim	-	yes, 1,2-DCE
2BVS243	July 20/99	South wall, east side, 10-14 ft	0.5	Interim	-	yes, 1,2-DCE
2BVS257	July 23/99	south wall, east side, 10-14 ft	8	Interim	-	yes, 1,2-DCE

Table 26 - Verification Sampling Results for VOC Testing in Area 2B.

Contaminants of Concern	2BVS163 Floor, NW corner, 13.5 ft July 7, 1999 PID 3.5 ppm (µg/kg)	2BVS164 North wall, west side 10-13 ft BGS July 7, 1999 PID 10 ppm (µg/kg)	2BVS226 (dup) ¹ Floor West end 15 ft BGS July 15, 1999 PID 0.4 ppm (µg/kg)	2BVS227 A615-23(split) ² South wall, west end 10-13 ft BGS July 15, 1999 PID 0.3 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	710	810	170	23 J	880	64,000
1,2-Dichloroethene (total)	44 J	220	31 J	199	410	2.8x10 ⁶
Acetone	Nd	Nd	47 JB	9 JB	200	8x10 ⁶
Vinyl Chloride	57 J	Nd	Nd	13 J	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	7 B	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

 350 D Shaded concentrations indicate an exceedance of the clean-up objective

 350 D Shaded concentrations indicate an exceedance of the action level

Table 26 - Verification Sampling Results for VOC Testing in Area 2B (cont'd).

Contaminants of Concern	2BVS229 North, south central 16 ft BGS July 15, 1999 PID 1.5 ppm (µg/kg)	2BVS230 South wall, center 10-14 ft BGS July 15, 1999 PID 0 ppm (µg/kg)	2BVS231 A615-24(split) ² Floor, east side 16 ft BGS July 15, 1999 PID 1.7 ppm (µg/kg)	2BVS256 West wall, Center 10-16 ft BGS July 22, 1999 PID 0.6 ppm (µg/kg)	2BVS258 South extension, east wall 10-14 ft BGS August 4, 1999 PID 8.8 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	170	35 J	445 D	490 J	550	880	64,000
1,2-Dichloroethene (total)	58 J	52 J	155	Nd	290	410	2.8x10 ⁶
Acetone	40 JB	38 JB	11 JB	Nd	25 J	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	5 J	Nd	11 J	200	360
Xylenes (total)	6 J	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	8 B	Nd	Nd	150	93,000

J - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 26 - Verification Sampling Results for VOC Testing in Area 2B (cont'd).

Contaminants of Concern	2BVS259 South extension, west wall 10-14 ft BGS August 4, 1999 PID 1.3 ppm (µg/kg)	2BVS260 South extension, south wall, center 10-14 ft BGS August 4, 1999 PID 2.0 ppm (µg/kg)	2BVS261 South extension, Floor, 16 ft BGS August 4, 1999 PID 0.0 ppm (µg/kg)	2BVS262 South extension, south wall, west side 10-14 ft BGS August 4, 1999 PID 0.0 ppm (µg/kg)	2BVS263 South extension, south wall, east side 10-14 ft BGS August 4, 1999 PID 9.5 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	17 J	110	Nd	9 J	99	880	64,000
1,2-Dichloroethene (total)	110	63	30 J	42 J	100	410	2.8x10 ⁶
Acetone	22 J	21 J	45 J	12 J	15 J	200	8x10 ⁶
Vinyl Chloride	15 J	33 J	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected


 Shaded concentrations indicate an exceedance of the clean-up objective


 Shaded concentrations indicate an exceedance of the action level

NC
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DROGEN

BRICK
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25.5'

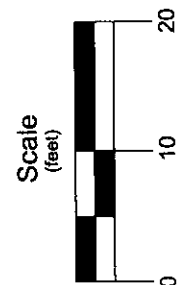
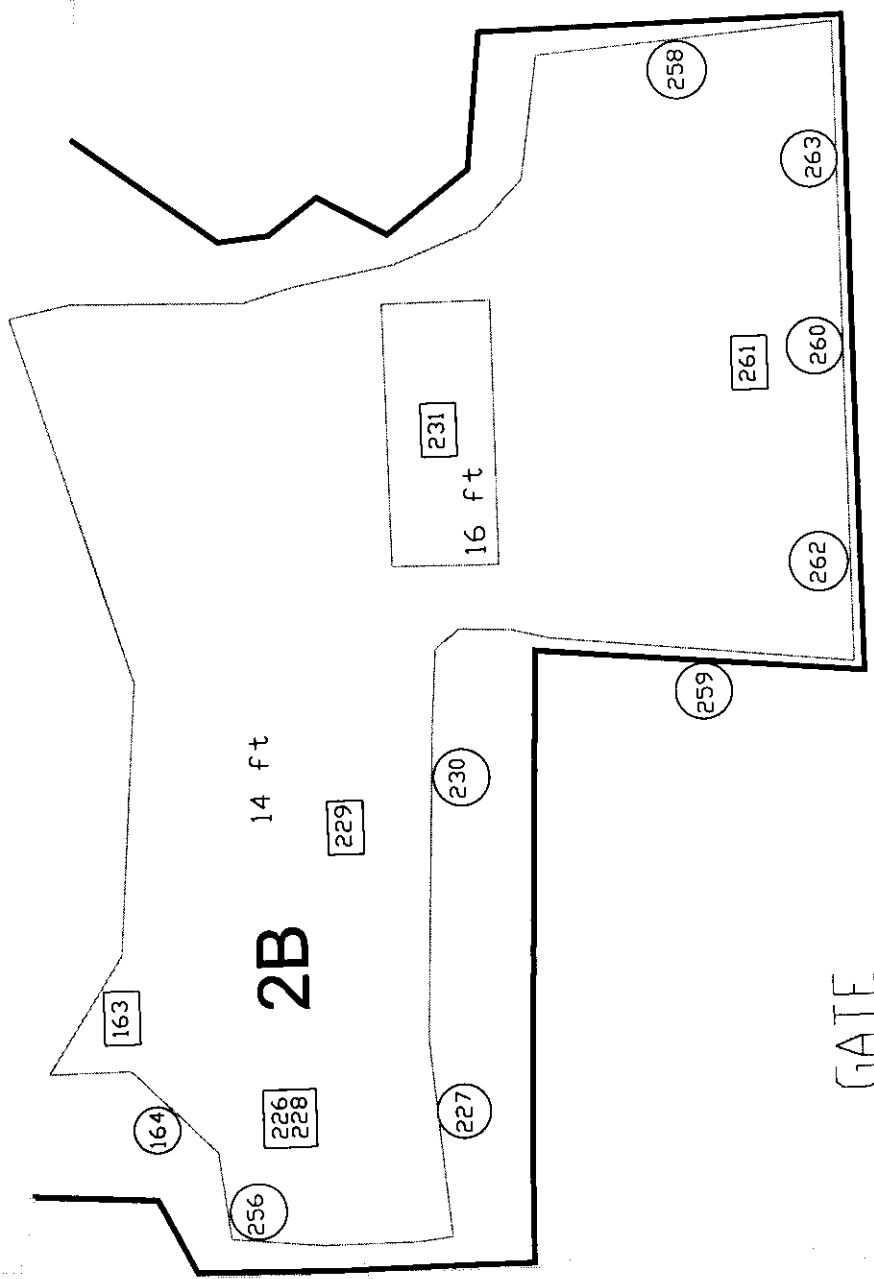


Figure #: **20**

Locations of Verification Samples in
Area 2B

Legend

- Top of bank - actual excavation
- Bottom of bank - actual excavation
- Approximate Depth BGS
- 16 ft
- Wall Sample
- Floor Sample

Duke Engineering & Construction Services (Canada), Inc.
3075 14th Avenue,
Suite 207
Markham, Ont.
L3R 0G9
Phone (905) 513-9400
Fax (905) 513-9405

Project #: TM8097
Date: August 18, 1999
Drawn by: MSM
File Name: 8097Contamination.dwg

NC
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DROGEN

BRICK
BUILDING
25.5'
14.6'

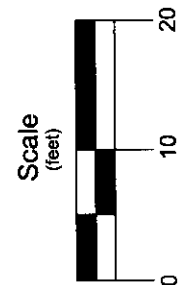
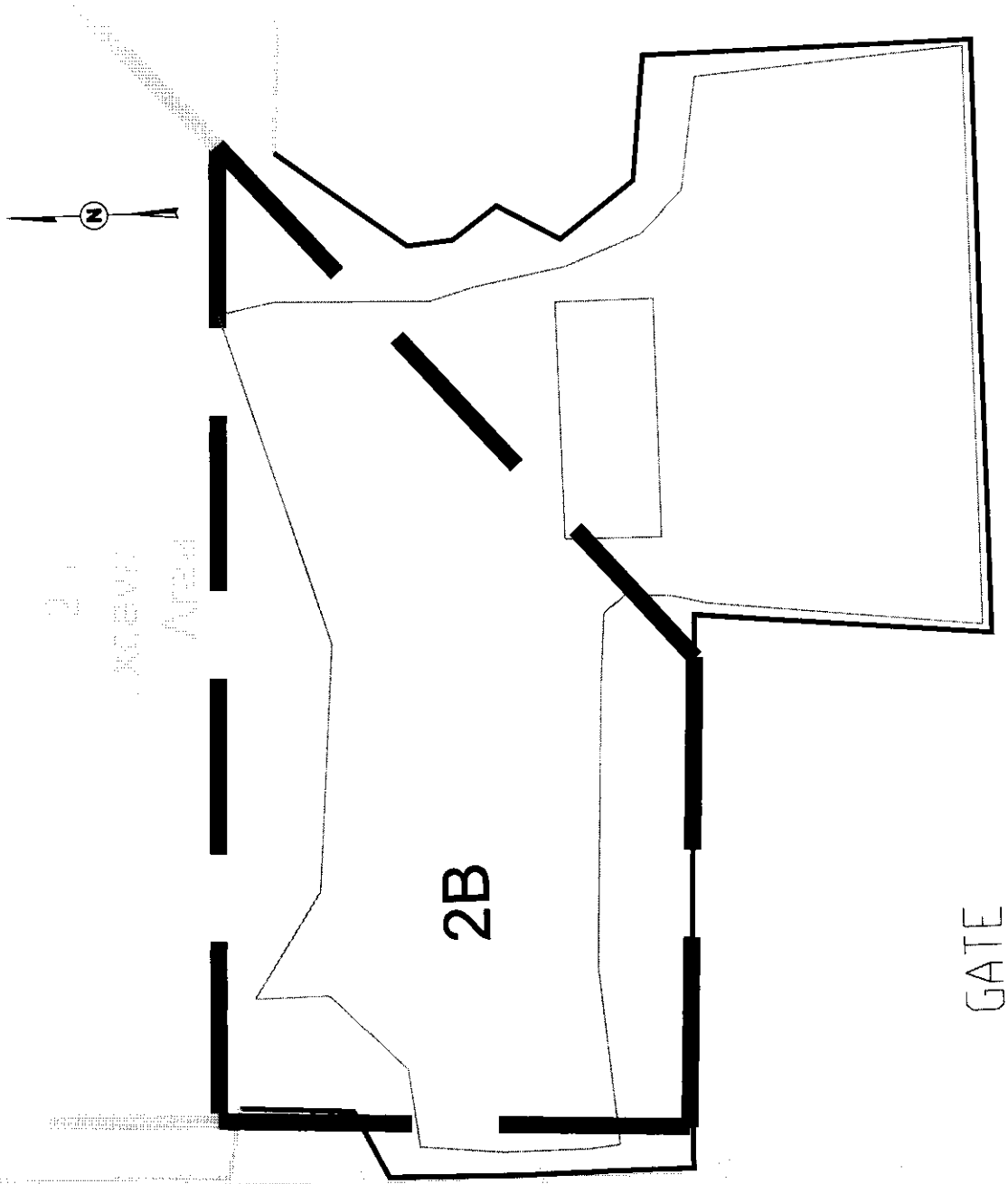


Figure #: 21	Estimated and Actual Extents of Excavation in Area 2B		Legend	
Project #: TM8097	Date: August 18, 1999	Drawn by: MSM	File Name: 8097Contamination.dwg	Estimated excavation extent Top of bank - actual excavation Bottom of bank - actual excavation
Duke Engineering & Services (Canada), Inc. A Duke Engineering Company		3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405		

3.6. AREA 2D

Area 2D was identified as an area containing soils with trichloroethene and vinyl chloride concentrations above action levels; however, during the pre-characterization test pit program, a composite soil sample collected from 0 to 4 ft BGS in area 2D contained trichloroethene in leachate above the maximum NYCRR Part 371 concentration of 500 µg/L. Soil from 0 to 4 ft BGS in area 2D was therefore disposed at CWM. Remaining soils were disposed at MODERN. Area 2D was excavated between May 25 and July 19, 1999.

Interim samples were collected to identify when the excavation of action level soils was complete and verification samples were collected to identify when the excavation of clean-up objective soils was complete. A total of 4 interim samples, 8 verification samples and 2 duplicate samples were collected from area 2D and submitted to STL for VOCs analysis. Table 27 is the sample control log for area 2D. The interim samples had VOC contaminant concentrations that exceeded the clean-up objectives but not the action levels. Following removal of the action level soil, remaining soils were excavated and verification samples were collected. None of the verification samples exceeded the clean-up objectives. A summary of verification sampling results is provided in Table 28. A total of 319 tons or 140 yd³ of non-hazardous material was hauled from area 2D. A total of 847 tons or 370 yd³ of action level material was hauled from area 2D. Figure 22 and Figure 23 show the locations of verification samples and both the estimated and actual extents of excavation of area 2D. The final depth of area 2D ranged between 4 and 7 ft BGS.

Area 2D was backfilled on July 23, 1999 with material attained from Harold and Pletcher Roads.

Table 27 - Sample Control Log for Area 2D.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
2DVS051	May 27/99	Wall, north side composite	0	Verify	A615-09	no
2DVS083	June 7/99	floor, center, 4 ft	16.2	Verify	-	no
2DVS118	June 21/99	floor, north end, 7 ft	0	Verify	-	no
2DVS120	June 21/99	east wall, center	5.5	Verify	-	no
2DVS148	June 29/99	East wall, south end	0	Verify	-	no
2DVS238	July 19/99	Floor, SW corner, 4 ft	0.2	Verify	-	no
2DVS239	July 19/99	Duplicate of 2DVS238	0.2	Verify	-	no
2DVS240	July 19/99	Floor, SE corner, 4 ft	0.1	Verify	-	no
2DVS244	July 20/99	East wall, north side, 0-4 ft	0	Verify	-	no
2DVS056	June 1/99	floor, north end, 4 ft	89.8	Interim	-	yes, 1,2-DCE
2DVS057	June 1/99	Duplicate of 2DVS056	89.8	Interim	-	yes, 1,2-DCE
2DVS082	June 7/99	west wall, north 1/2	12.9	Interim	-	no
2DVS100	June 16/99	east wall, north end, 0-4 feet	69	Interim	-	yes, xylenes
2DVS119	June 21/99	west wall, south end	7.5	Interim	-	no

Table 28 - Verification Sampling Results for VOC Testing in Area 2D.

Contaminants of Concern	2DVS051 A615-09(split) ² N wall May 27, 1999 PID 0 ppm (µg/kg)	2DVS083 Floor, center, 4 ft June 7, 1999 PID 16.2 ppm (µg/kg)	2DVS118 Floor, N end, 7 ft June 21, 1999 PID 0 ppm (µg/kg)	2DVS120 E wall, center June 21, 1999 PID 5.5 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	5 J	140	820	280	880	64,000
1,2-Dichloroethene (total)	16 J	160	150	44 J	410	2.8x10 ⁶
Acetone	31 J	11 J	14 JB	67	200	8x10 ⁶
Vinyl Chloride	2 J	Nd	Nd	Nd	200	360
Xylenes (total)	1 JB	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	2 JB	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	2 J	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

Table 28 - Verification Sampling Results for VOC Testing in Area 2D (cont'd).

Contaminants of Concern	2DVS148 E wall, S end, 0-4 ft June 29, 1999 PID 0 ppm (µg/kg)	2DVS238 2DVS239(dup) ¹ Floor, SW corner, 4 ft July 19, 1999 PID 0.2 ppm (µg/kg)	2DVS240 Floor, SE corner, 4 ft July 19, 1999 PID 0.1 ppm (µg/kg)	2DVS244 E Wall, N end July 20, 1999 PID 0 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	230	42 J	Nd	880	64,000
1,2-Dichloroethene (total)	Nd	94	19 J	Nd	410	2.8x10 ⁶
Acetone	30 JB	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	39 J	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	4 J	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

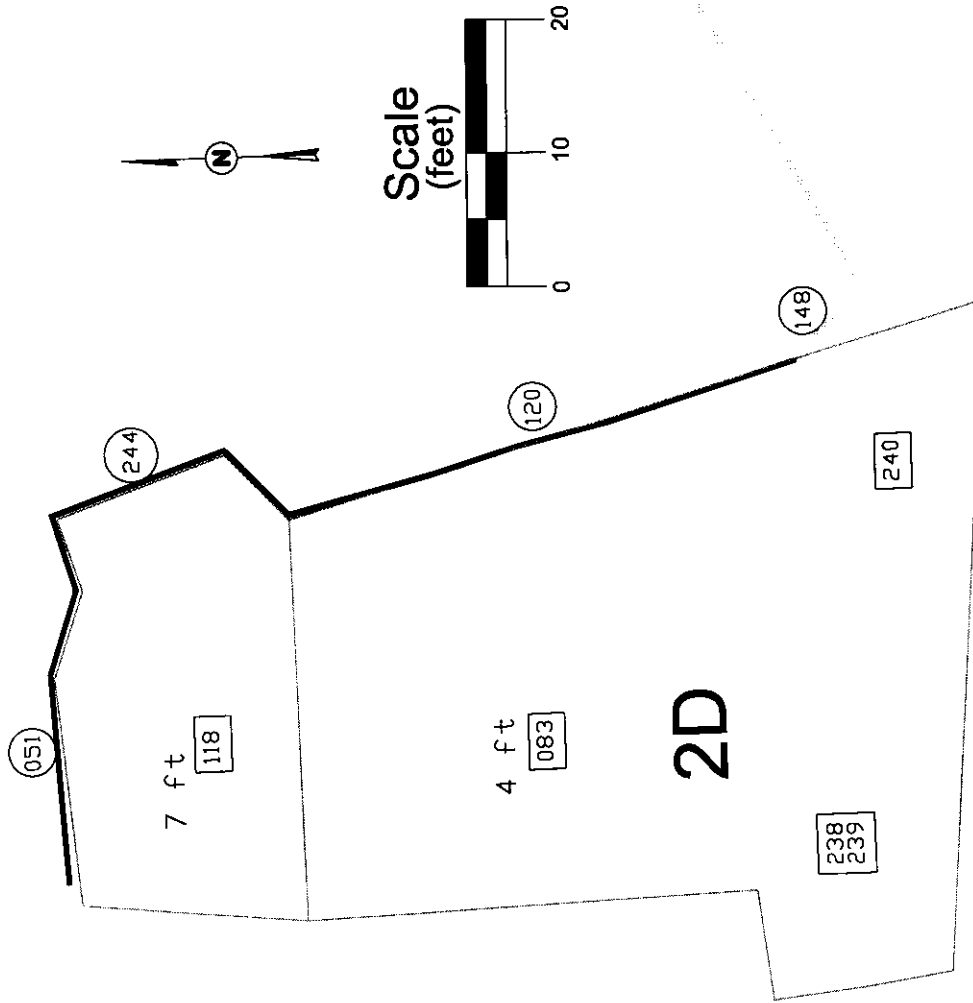
B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

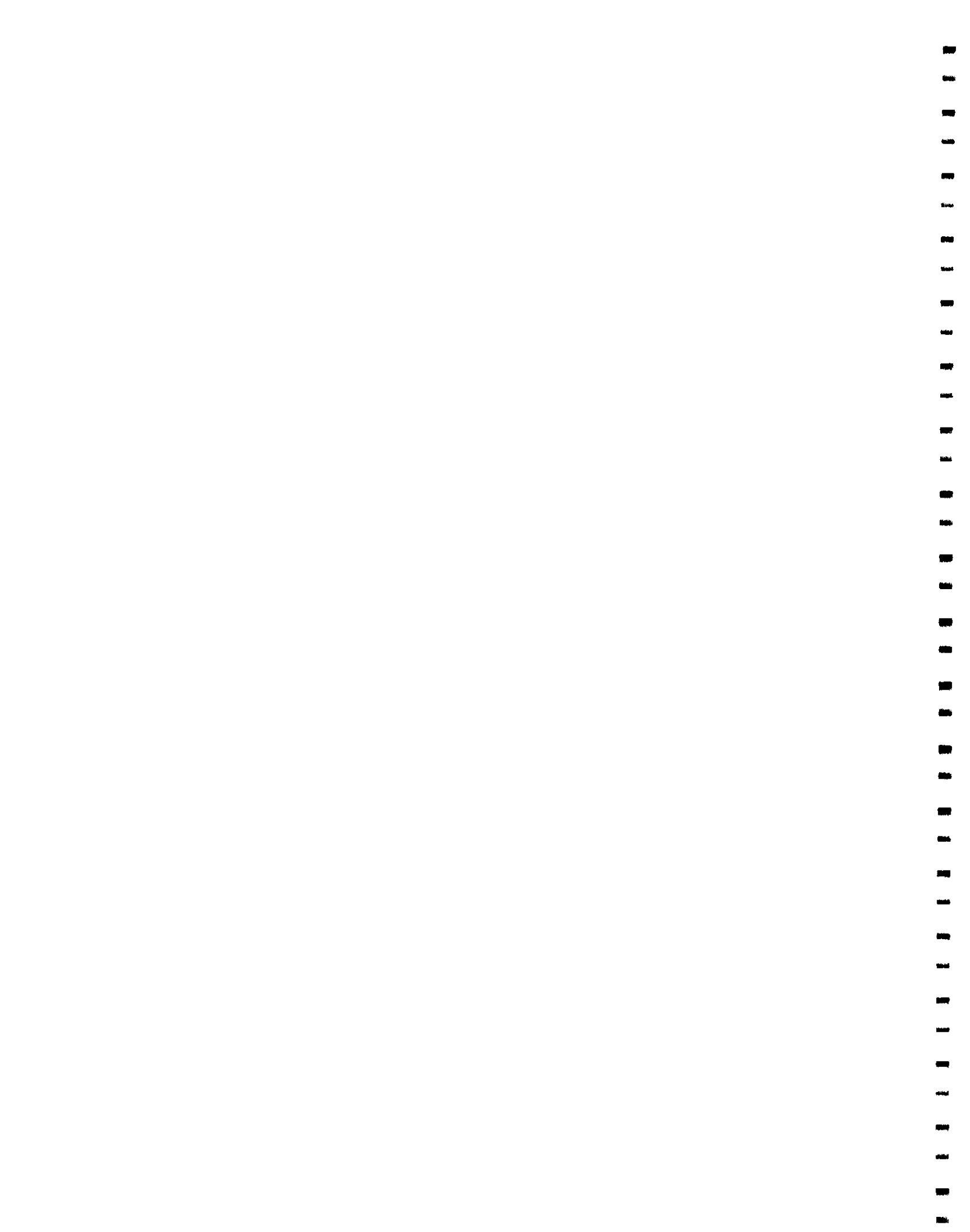
350 D Shaded concentrations indicate an exceedance of the action level

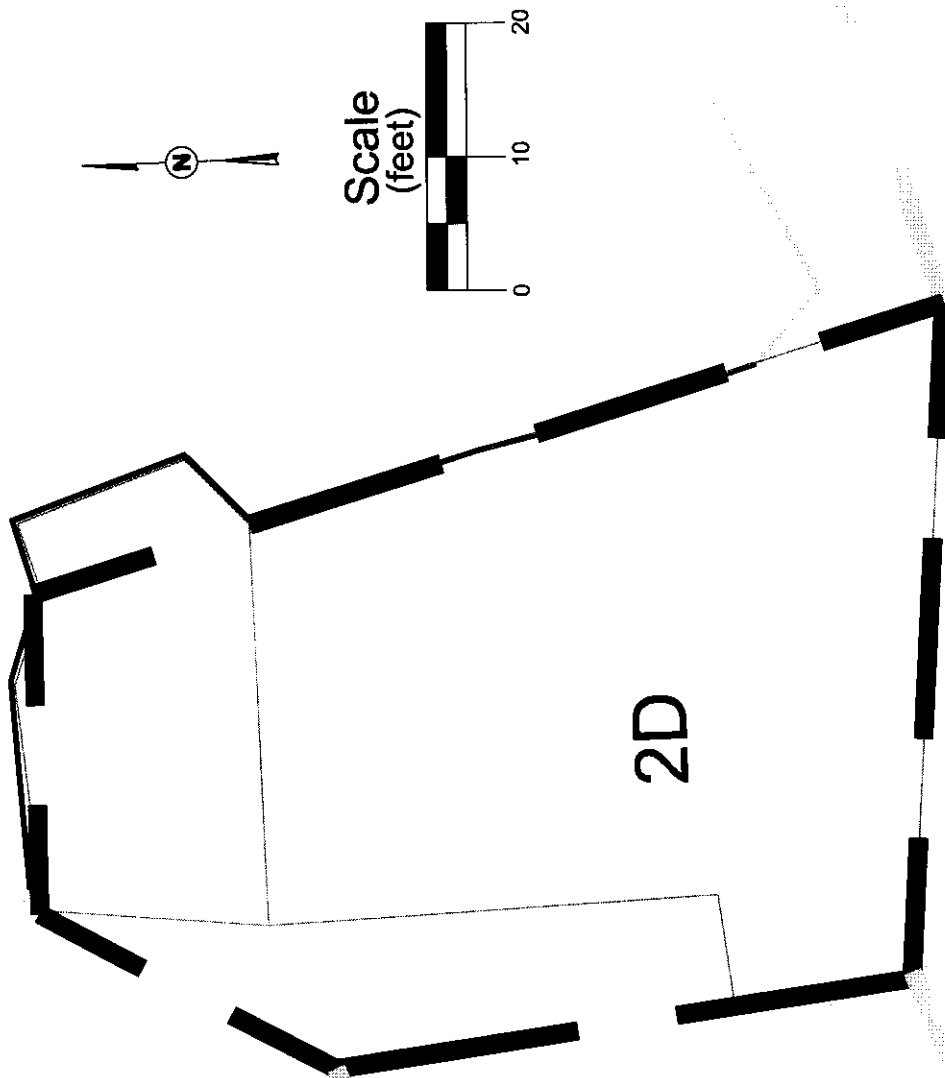


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 Fax (905) 513-9405

Figure #: 22
Project #: TM8097
Date: August 18, 1999
Drawn by: MSM
File Name: 8097Contamination.dwg

Locations of Verification Samples in Area 2D





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 L3R 0G9
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 Fax (905) 513-9405

Legend

- Estimated excavation extent
- Top of bank - actual excavation
- Bottom of bank - actual excavation

**Estimated and Actual Extents of
Excavation in Area 2D**

Figure #:
23

Project #: TM8097
Date: August 18, 1999
Drawn by: MSM
File Name: 8097Contamination.dwg

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3.7. AREA 3

Area 3 was identified as an area contaminated from 0 to 4 feet BGS with VOCs. Soil excavated from this area was non-hazardous and disposed at MODERN landfill. Area 3 was excavated between May 18 and 25, 1999.

A total of one interim sample, eight verification samples and one duplicate sample were collected and submitted to STL for VOCs analysis. Table 29 is the sample control log for area 3. The interim sample exceeded the clean-up objective for acetone requiring additional excavation of the west wall. All of the verification samples had VOC concentrations below the clean-up objectives. A summary of verification sampling results is provided in Table 30. A total of 522 tons or 246 yd³ of non-hazardous material was excavated from area 3. Figure 24 and Figure 25 show the locations of verification samples and the estimated and actual extents of excavation in area 3.

Area 3 was backfilled on June 8, 1999 with material attained from 827 Lake Road.

Table 29 - Sample Control Log for Area 3.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
3VS024	May 18/99	west wall, center of south half	8.5	Verify	-	no
3VS025	May 18/99	duplicate of 3VS024	8.5	Verify	-	no
3VS026	May 18/99	floor, center of east half, 4 ft	1.2	Verify	A615-02	no
3VS027	May 18/99	east wall, center of north half	0.7	Verify	-	no
3VS028	May 18/99	floor, north-west quadrant, 4 ft	1.4	Verify	A615-01	no
3VS030	May 18/99	north wall, center	0.2	Verify	-	no
3VS031	May 18/99	floor, center of south end, 4 ft	0.3	Verify	-	no
3VS032	May 18/99	south wall, composite	0.1	Verify	-	no
3VS049	May 25/99	West wall, north 1/2	0.7	Verify	-	no
3VS029	May 18/99	west wall, center of north half	0.3	Interim	-	yes, acetone

Table 30- Verification Sampling Results for VOC Testing in Area 3.

Contaminants of Concern	3VS024 3VS025(dup) ¹ W wall, S ½ May 18, 1999 PID 8.5 ppm (µg/kg)	3VS026 A615-02(split) ² Floor, E ½, 4 ft May 18, 1999 PID 1.2 ppm (µg/kg)	3VS027 E wall, N ½ May 18, 1999 PID 0.7 ppm (µg/kg)	3VS028 A615-01(split) ² Floor, NW corner, 4 ft May 18, 1999 PID 1.4 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	170	6 J	85	Nd	880	64,000
1,2-Dichloroethene (total)	30 J	Nd	10 J	Nd	410	2.8x10 ⁶
Acetone	33 J	24 J	49 J	39	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	605	1 BJ	Nd	1 BJ	1,680	2x10 ⁸
Ethylbenzene	84	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	11 J	1 BJ	Nd	1 BJ	2,100	20x10 ⁶
Methylene Chloride	Nd	2 J	Nd	2 J	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

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350 D

Shaded concentrations indicate an exceedance of the clean-up objective

Shaded concentrations indicate an exceedance of the action level

Table 30 - Verification Sampling Results for VOC Testing in Area 3 (cont'd).

Contaminants of Concern	3VS030 N wall May 18, 1999 PID 0.2 ppm (µg/kg)	3VS031 Floor, S ½, 4 ft May 18, 1999 PID 0.3 ppm (µg/kg)	3VS032 S wall May 18, 1999 PID 0.1 ppm (µg/kg)	3VS049 W wall, N ½ May 25, 1999 PID 0.7 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	32 J	21 J	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	Nd	Nd	410	2.8x10 ⁶
Acetone	41 J	27 J	35 J	70	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	150	93,000

J - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

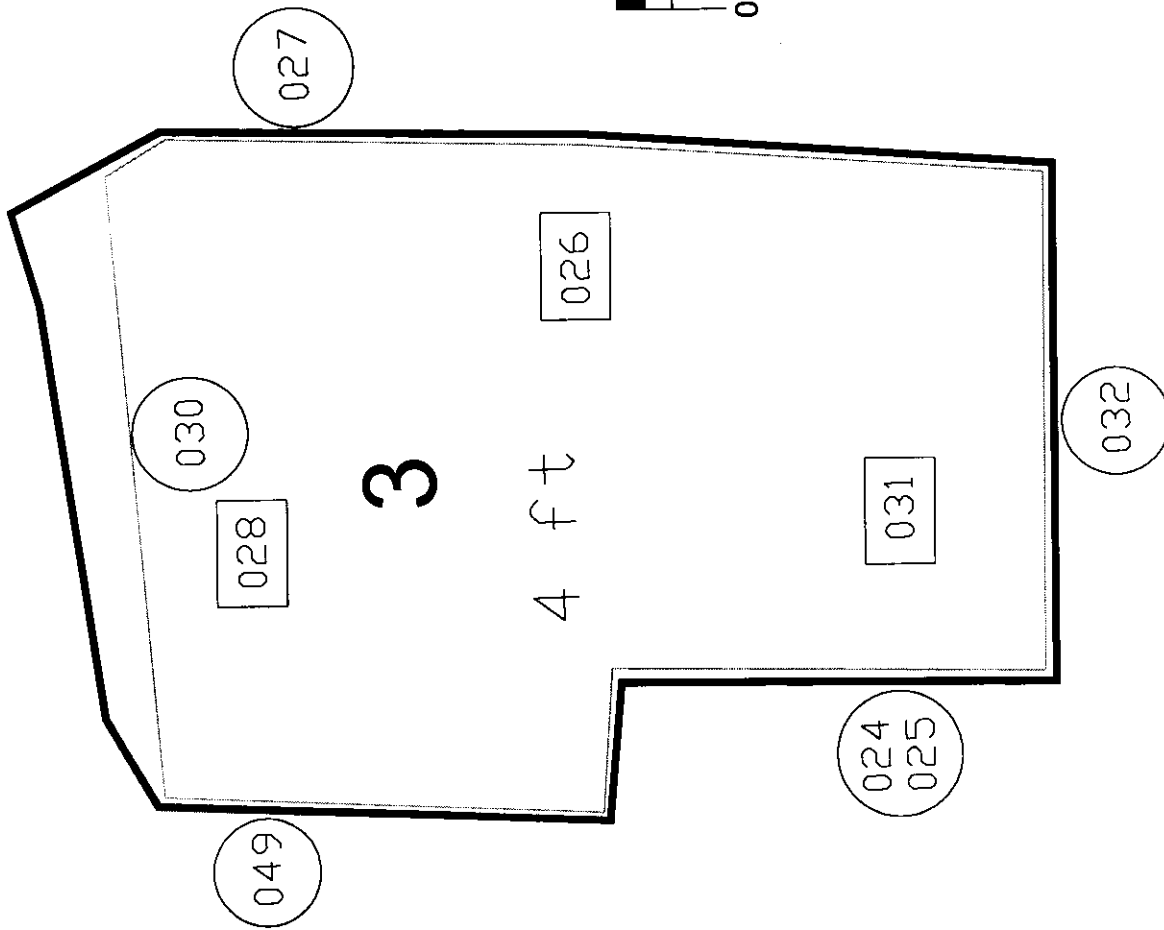


Figure #: 24	Locations of Verification Samples in Area 3		Legend	Top of bank - actual excavation Bottom of bank - actual excavation Approximate Depth BGS 4 ft	☐ Wall Sample ☐ Floor Sample	Duke Engineering & Services (Canada), Inc. 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405
Project #: TM8097	Date: August 18, 1999	Drawn by: MSM	File Name: 8097Contamination.dwg			

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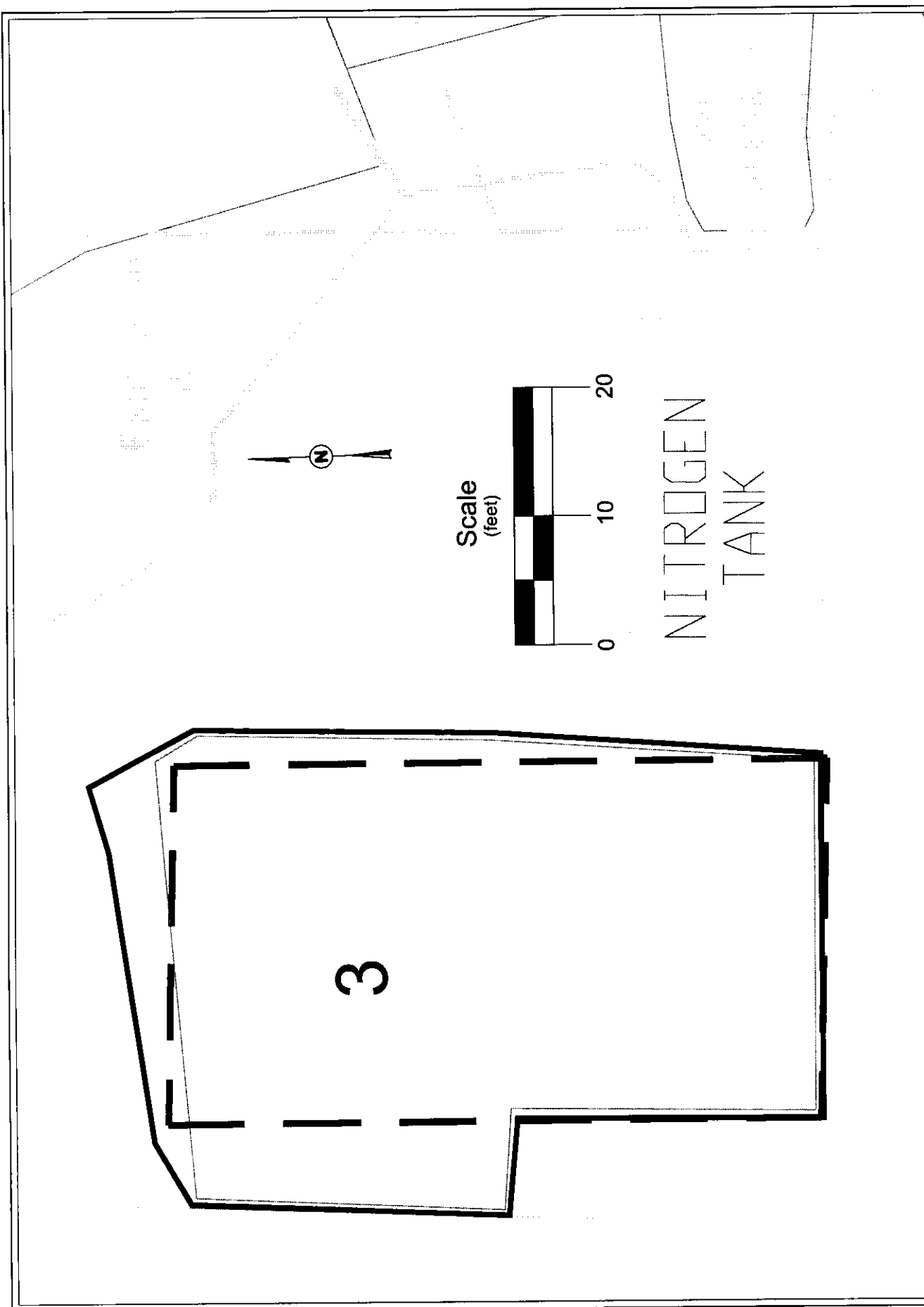


Figure #: 25	Estimated and Actual Extents of Excavation in Area 3	Legend --- Estimated excavation extent --- Top of bank - actual excavation --- Bottom of bank - actual excavation
Project #: TM8097	Date: August 18, 1999	Drawn by: MSM
File Name: 8097Contamination.dwg	Phone (905) 513-9400 Fax (905) 513-9405	Duke Engineering & Services (Canada), Inc. 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9

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3.8. AREA 4

Area 4 was identified as an area contaminated from 2 to 4 feet BGS with VOCs. Material from 0 to 2 ft BGS consisted of asphalt and rock and was stockpiled on-site for later use as asphalt base. Soil excavated from 2 to 4 ft BGS in this area was non-hazardous and disposed at MODERN landfill. Area 4 was excavated on July 9, 1999.

A total of six verification samples and one duplicate sample were collected and submitted to STL for VOCs analysis. Table 31 is the sample control log for area 4. None of the verification samples exceeded the clean-up objectives for VOCs. A summary of verification sampling results is provided in Table 32. A total of 124 tons or 44 yd³ of non-hazardous soil was excavated from area 4. The total volume of clean and non-hazardous material excavated from area 4 was 83 yd³. Figure 26 and Figure 27 show the locations of verification samples and both the estimated and actual extents of excavation in area 4.

Area 4 was backfilled on July 15, 1999 with material attained from 1500 James Avenue.

Table 31 - Sample Control Log for Area 4.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
4VS201	July 9/99	West wall, 2-4 ft	0.4	Verify	-	no
4VS202	July 9/99	North wall, 2-4 ft	0.6	Verify	-	no
4VS203	July 9/99	East wall, 2-4 ft	0.5	Verify	-	no
4VS204	July 9/99	South wall, 2-4 ft	0.4	Verify	-	no
4VS205	July 9/99	floor, west 1/2, 4 ft	0.5	Verify	-	no
4VS206	July 9/99	floor, east 1/2, 4 ft	0.4	Verify	-	no
4VS207	July 9/99	duplicate of 4VS205	0.5	Verify	-	no

Table 32 - Verification Sampling Results for VOC Testing in Area 4.

Contaminants of Concern	4VS201 W wall, 2-4 ft July 9, 1999 PID 0.4 ppm (µg/kg)	4VS202 N wall, 2-4 ft July 9, 1999 PID 0.6 ppm (µg/kg)	4VS203 E wall, 2-4 ft July 9, 1999 PID 0.5 ppm (µg/kg)	4VS204 S wall, 2-4 ft July 9, 1999 PID 0.4 ppm (µg/kg)	4VS205 4VS207(dup) ¹ Floor, W ½, 4 ft July 9, 1999 PID 0.5 ppm (µg/kg)	4VS206 Floor, E ½, 4 ft July 9, 1999 PID 0.4 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	Nd	Nd	Nd	Nd	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	Nd	Nd	Nd	Nd	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	120	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	Nd	Nd	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	Nd	Nd	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	Nd	Nd	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	Nd	150	93,000

1 - The results reported are the average of the sample and duplicate.

2 - The results reported are the average of the DE&S verification sample and the NYSDEC split sample.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

Nd - not detected

350 D Shaded concentrations indicate an exceedance of the clean-up objective

350 D Shaded concentrations indicate an exceedance of the action level

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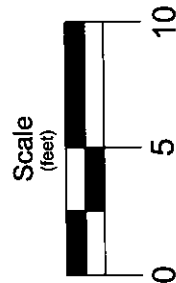
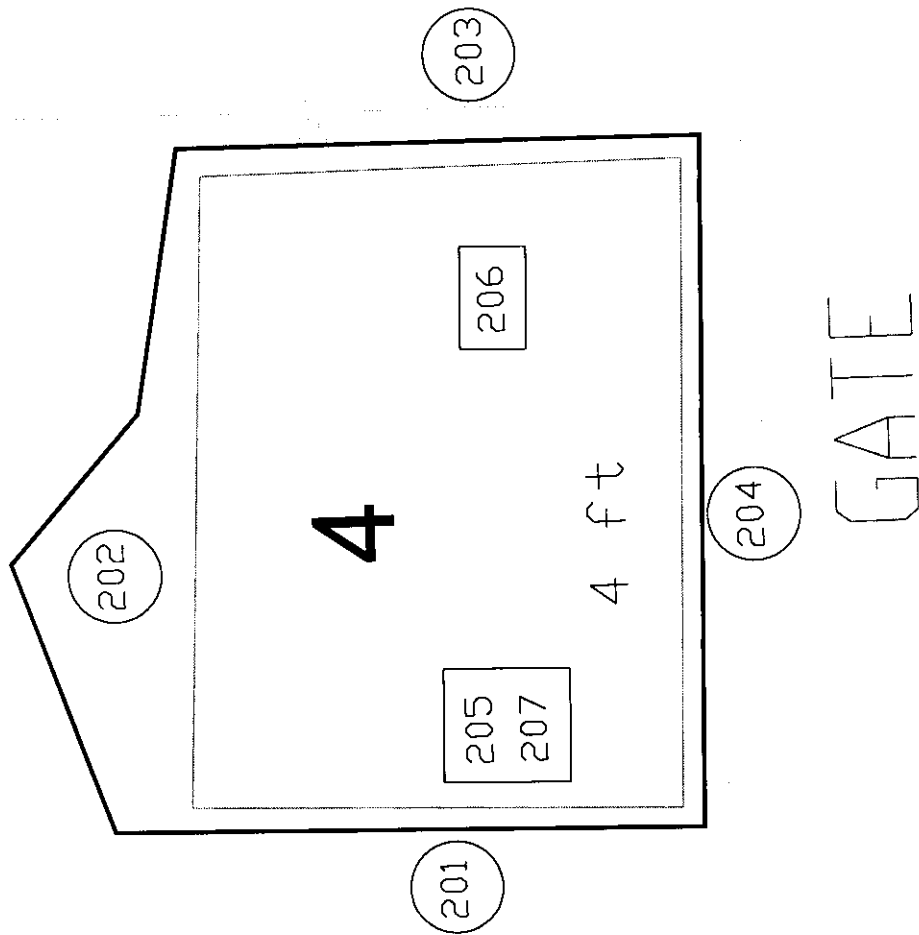
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Legend

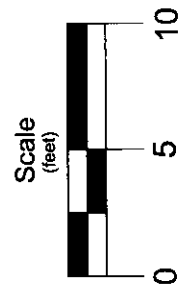
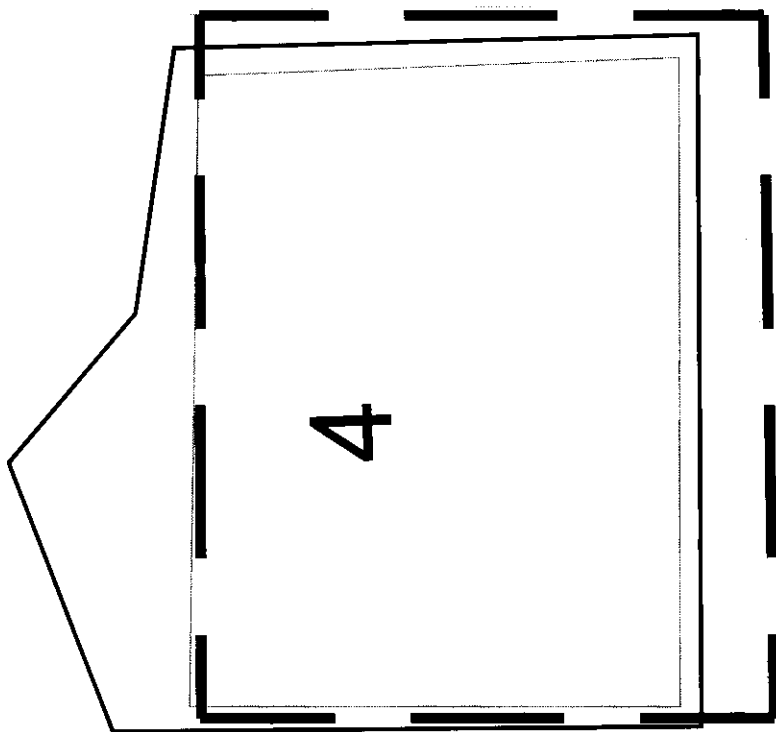
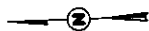
- Top of bank - actual excavation ☐ Wall Sample
Bottom of bank - actual excavation ☐ Floor Sample
4 ft Approximate Depth BGS

Locations of Verification Samples in Area 4

Figure #: 26

Project #: TM8097
Date: August 18, 1999
Drawn by: MSM
File Name: 8097Contamination.dwg





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Figure #: 27	Estimated and Actual Extents of Excavation in Area 4	Legend	Duke Engineering & Services (Canada), Inc. 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G8 Phone (905) 513-9400 Fax (905) 513-9405
Project #: TM8097	Date: August 18, 1999	Drawn by: MSM	File Name: 8097Contamination.dwg
		Estimated excavation extent Top of bank - actual excavation Bottom of bank - actual excavation	

3.9. AREA 5

Area 5 was identified as an area contaminated from 0 to 2 feet BGS with xylenes (total) and lead. During the pre-characterization test pit program, a composite soil sample collected from 0 to 2 ft BGS contained lead in leachate above the maximum NYCRR Part 371 concentration of 5,000 $\mu\text{g/L}$. Therefore, soil from this area was disposed at CWM. Area 5 was excavated on July 9, 1999.

Area 5 was excavated to 2.5 ft because the depth of the sand fill was 2.5 ft and the fill was underlain by native clay. A total of five verification samples and two duplicate samples were collected and submitted to STL for VOCs and total lead in soil. Table 33 is the sample control log for area 5. None of the verification samples exceeded the cleanup objectives for VOCs. Total lead concentrations for all of the verification samples were below 100 ppm, or 100,000 $\mu\text{g/kg}$, which is within the range of site background lead concentrations. A summary of verification sampling results is provided in Table 34. A total of 58 tons or 40 yd^3 , was excavated from area 5. Figure 28 and Figure 29 show the locations of verification samples and both the estimated and actual extents of excavation of area 5.

Area 5 was backfilled on July 9, 1999 with asphalt and stone stockpiled on-site.

Table 33 - Sample Control Log for Area 5.

Sample ID	Date	Description	Headspace Gas Readings (ppm)	Verify or Interim	NYSDEC Split #	Exceeds clean-up criteria
5VS194	July 9/99	Floor, east 1/2, 2.5 ft	1.3	Verify	A615-20	no
5VS195	July 9/99	East wall, 0-2 ft, composite	3.5	Verify	-	no
5VS196	July 9/99	South wall, 0-2 ft, composite	8.5	Verify	A615-21	no
5VS197	July 9/99	Floor, west 1/2, 2.5 ft	1.8	Verify	-	no
5VS198	July 9/99	West wall, 0-2 ft, composite	2	Verify	-	no
5VS199	July 9/99	duplicate of 5VS194 for lead analysis	1.3	Verify	-	no
5VS200	July 9/99	duplicate of 5VS198 for VOCs analysis	2	Verify	-	no

Table 34 - Verification Sampling Results for VOC Testing in Area 5.

Contaminants of Concern	5VS194 5VS199(dup) ⁴ A615-20(split) ^{2,4} Floor, E ½, 2.5 ft July 9, 1999 PID 1.3 ppm (µg/kg)	5VS195 E wall, 0-2 ft July 9, 1999 PID 3.5 ppm (µg/kg)	5VS196 A615-21(split) ^{2,4} S wall, 0-2 ft July 9, 1999 PID 8.5 ppm (µg/kg)	5VS197 Floor, W ¼, 2.5 ft July 9, 1999 PID 1.8 ppm (µg/kg)	5VS198 5VS200(dup) ^{1,5} W wall, 0-2 ft July 9, 1999 PID 2 ppm (µg/kg)	Clean-up Objective (µg/kg)	Action Level (µg/kg)
Trichloroethene	Nd	Nd	Nd	Nd	Nd	880	64,000
1,2-Dichloroethene (total)	Nd	Nd	12 J	Nd	Nd	410	2.8x10 ⁶
Acetone	Nd	Nd	Nd	Nd	Nd	200	8x10 ⁶
Vinyl Chloride	Nd	Nd	Nd	Nd	Nd	200	360
Xylenes (total)	Nd	Nd	460	Nd	Nd	1,680	2x10 ⁸
Ethylbenzene	Nd	Nd	42 J	Nd	Nd	7,700	8x10 ⁶
Toluene	Nd	Nd	94	Nd	Nd	2,100	20x10 ⁶
Methylene Chloride	Nd	Nd	Nd	Nd	Nd	150	93,000
Lead	6,400	8,800	62,050	6,500	11,400	Na	Na

1 - The results reported are the average of the sample and duplicate.

2 - The lead result reported is the average of the DE&S verification sample and the NYSDEC split sample.

4 - Duplicate for lead only.

5 - Duplicate for VOCs only.

J - Indicates an estimated value. Compound meets identification criteria and is less than the specific detection limit but greater than zero.

B - Indicates that the analyte was found in both the sample and its associated laboratory blank. Possible/probable blank contamination.

D - Indicates compound identified in an analysis at a secondary dilution factor.

N - Spiked sample recovery not within control limits.

Nd - not detected

Shaded concentrations indicate an exceedance of the clean-up objective

Shaded concentrations indicate an exceedance of the action level



2 STORY BRICK & BLOCK BUILDING

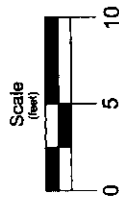
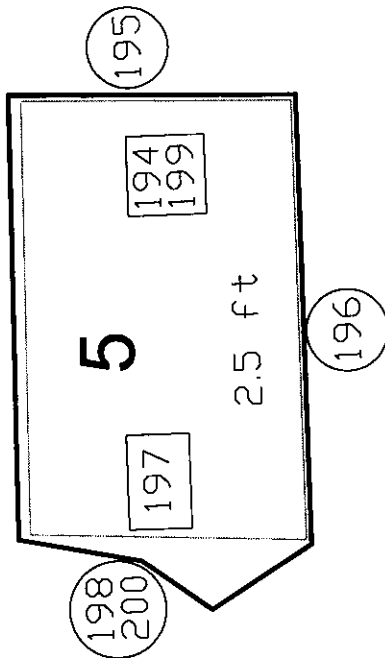


Figure #:

28

Location of Verification Samples in Area 5

Project #:
TM8097

Date:
August 18, 1999

Drawn by:
MSM

File Name:
8097Contamination.dwg

Legend

—— Top of bank - actual excavation
 Bottom of bank - actual excavation
 2.5 ft Approximate Depth BGS

☐ Wall Sample
☐ Floor Sample

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2 STORY BRICK & BLOCK BUILDING

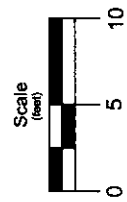
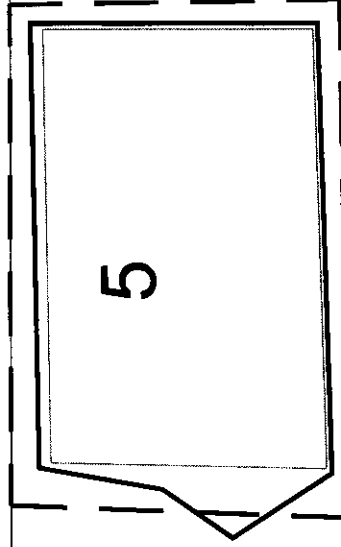


Figure #: 29	Estimated and Actual Extents of Excavation in Area 5		Legend --- Estimated excavation extent --- Top of bank - actual excavation --- Bottom of bank - actual excavation	
Project #: TM8097	Date: August 18, 1999	Drawn by: MSM	File Name: 8097Contamination.dwg	Duke Engineering & Services (Canada), Inc. INCORPORATED IN CANADA 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405



4. CONDITION OF SOIL REMAINING ON SITE

The goal of the IRM was to remove contaminated soils from the site. A total of 35,606 tons, or approximately 23,700 yd³, of soil was excavated and removed. Site conditions prevented the removal of some contaminated soils. An estimated total of 1980 yd³ remains on-site at depths below 10 feet. The volume of soil remaining represents approximately 8% of the total volume of identified contaminated soil. The objective of the IRM was to affect an improvement in groundwater quality with time following source removal. Over 90% of contaminated soils have been removed from the property, including over 2000 tons of action level soil. It is believed that a significant proportion of the source of contamination to groundwater has been removed from the site, and the objective of the IRM will be achieved.

Areas where contaminated soils remain on-site or at the property boundaries include 1A/1C, 1D/1D-extension/2C and 2A/2E. These areas are described below and are shown on Figure 30.

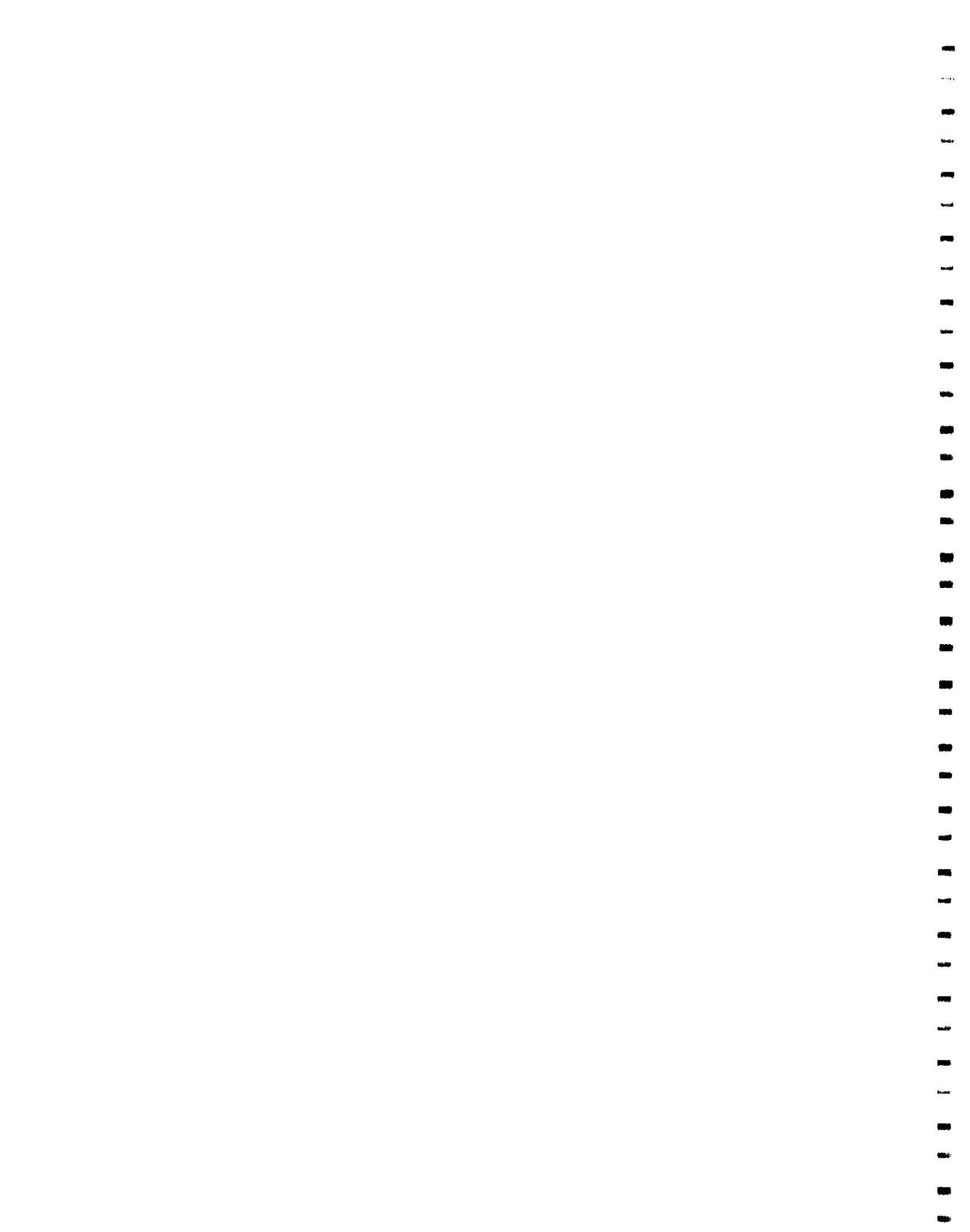
4.1. AREAS 1A AND 1C

Several verification samples collected from the north wall of areas 1A and 1C exceeded the clean-up objective for trichloroethene and/or PAHs. These samples do not represent contaminated soil remaining on-site because the north wall of areas 1A and 1C extended to the north property boundary.

4.2. AREAS 1D, 1D-EXTENSION AND 2C

Verification sampling results indicate that non-hazardous soil remains on-site in areas 1D-extension and 2C on the floor at a depth of 24 ft (samples *1DVS213*, *1DVS216*, *2CVS176*[dup *2CVS177*], *2CVS179*, *2CVS182*, *2CVS183* and *2CVS189*[dup *2CVS193*]), on the east wall (sample *2CVS180*) at 20 ft and on the north wall (sample *1DVS220*) at 20 ft. Approximately 700 yd³ of non-hazardous soil remains on-site in areas 1D-extension and 2C. Additional excavation in these locations was not possible because of significant concern for reduced slope stability near the liquid nitrogen AST. No verification samples in area 1D exceeded the clean-up objectives for VOCs.

Verification sampling results also indicate that soil (sample *1DVS213*) containing vinyl chloride above the action level remains in area 1D-extension on the floor at 24 ft depth below the former location of the solvent storage area. An estimated 200 ft² of action level soil remains near sample location *1DVS213*. Assuming the depth of action level soil in this area is 6 ft, then approximately 40 yd³ of action level soil remains on-site. Excavating deeper in this area was not conducted due to slope stability concerns, as explained above.



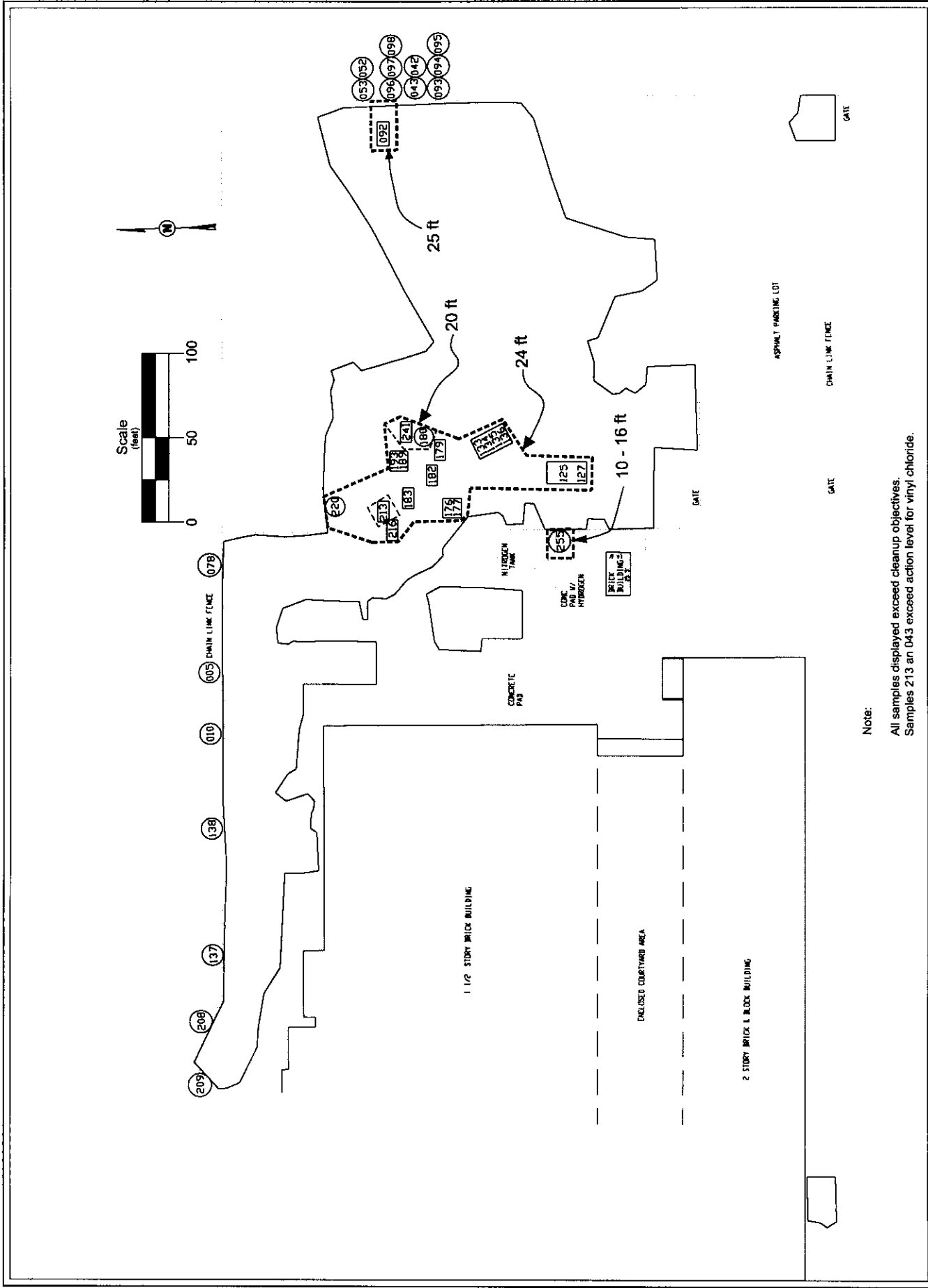


Figure #: 30	Contaminated Soil Remaining On-Site		Duke Engineering & Services (Canada), Inc. A L3Harris Company 3075 14th Avenue, Suite 207 Markham, Ont. L3R 0G9 Phone (905) 513-9400 Fax (905) 513-9405	
	Project #: TMB097	Date: August 18, 1999	Drawn by: MSM	File Name: 8097Contamination.dwg

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4.3. AREAS 2A AND 2E

Verification sampling results indicate that non-hazardous soil remains in area 2A in four locations: at the east wall from 0 to 16 ft (samples 2AVS042-043, 2AVS052-053 and 2AVS093-098), on the west wall near the hydrogen gas cylinders from 10 to 16 ft (sample 2AVS255), the floor in the north-east corner (sample 2AVS092) at 24 ft and the floor in the west end (samples 2AVS125, 2AVS127 and 2AVS133-136) at 18 to 24 ft.

Excavating further east was not conducted because the excavation extended to the east property boundary. An estimated 800 ft² of non-hazardous soil remains between 0-16 ft BGS on the east wall. Excavating further west was not possible because of the proximity of the hydrogen gas cylinders. As estimated 60 yd³ of non-hazardous soil remains between 10-16 ft on the west wall.

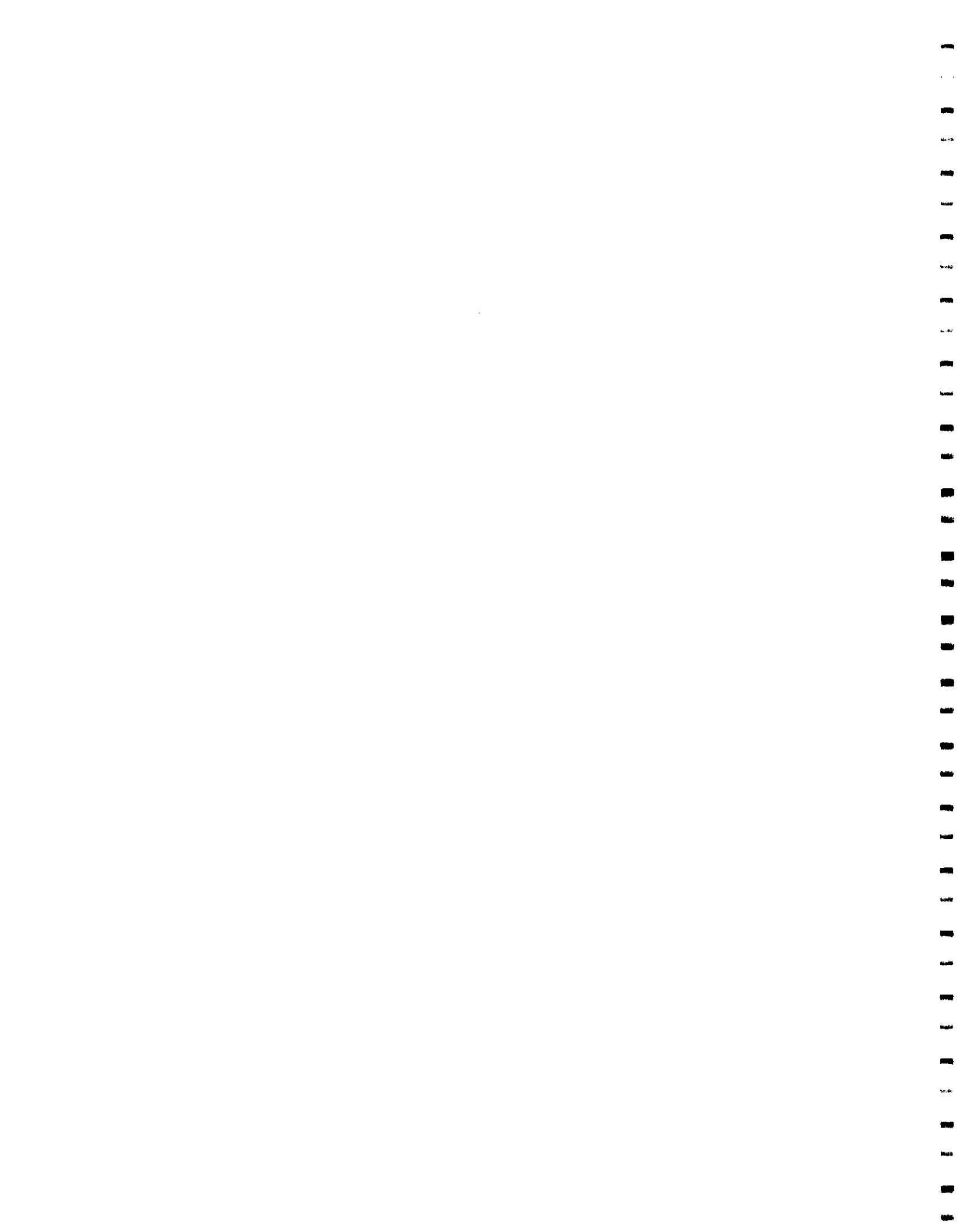
Excavating deeper than 25 ft in the north-east corner was not possible because of significant concern for reduced slope stability. An estimated 80 yd³ of non-hazardous soil remains below 25 ft in this area.

The west end of 2A was excavated to 18 feet. In three areas, floor samples were collected at 18 ft (samples 2AVS124, 2AVS129 and 2AVS133) and test pits were installed to 24 feet to determine the depth of contamination. Samples 2AVS125-127, 2AVS130-132 and 2AVS134-136 were collected from the test pits at 20, 22 and 24 feet. Results indicated that the west end of area 2A remained above the clean-up objectives at 24 ft BGS in two of the three test pits. Samples 2AVS129-132 were collected from the east half of the west portion of area 2A and did not exceed the VOC clean-up objectives. It was decided not to excavate further because:

- i) excavation was difficult due to the presence of loose sands, silts, gravels and boulders in this area and there was a significant concern for slope stability,
- ii) the proximity of the hydrogen gas cylinders and the liquid nitrogen AST, and
- iii) significant groundwater seepage that compounded slope stability issues.

The estimated volume of non-hazardous soils remaining in the west end of area 2A is 1,100 yd³. It is believed that contamination encountered in this area extends north into the contaminated zone identified in Area ID extension/2C at a depth of 24 ft.

Verification sampling results also indicate that action level soil remains in area 2A on the east wall (sample 2AVS043). An estimated 150 ft² of action level soil remains between 10-16 ft BGS on the east wall near sample location 2AVS043. Excavating further east was not conducted because the verification sample was collected at the east property boundary.



5. SITE RESTORATION

Restoration of site utilities and surfaces was completed as outlined in the plans and specifications document. A brief summary of specifications for paving and the on-site drainage system follows:

Paved areas of the site were restored by Ken Young Paving & Co. A total area of 43,028ft² was paved using two-inch binder and one-inch top on a crushed stone base to replace removed or damaged asphalt.

Underground piping for the on-site drainage system was replaced where damaged. Original piping was 12" or 18" diameter concrete. New 12" or 18" diameter high-density polyethylene (HDPE) piping meeting ASTM D3350 minimum cell classification 335420C was used to replace damaged pipe, as agreed to by Kanthal. Concrete catch basins that were removed during excavation were cleaned and replaced. One catch basin was damaged and was replaced with a new concrete catch basin designed to meet loading requirements HS 20-44. The catch basin was a 2 ft x 2 ft x 5 ft pre-cast with 6-inch walls and a heavy duty bicycle safe frame and grate.

Light standards and underground electrical wiring were replaced and restored to their previous condition.

The former solvent storage structure located in the north west portion of the parking lot was demolished to allow access to soils in area 1D-extension. As agreed with Kanthal, the structure was not replaced.



6. REFERENCES

- DE&S (1999) Final Interim Remedial Measure Work Plan for the Former Carborundum Company, Electric Products Division, Hyde Park Facility, Town of Niagara, Niagara County, New York, Site No. 932036, January 1999
- DE&S (1999) Plans and Specifications for Execution of the Interim Remedial Measure Work Plan for the Former Carborundum Company – Electric Products Division, Hyde Park Facility, Town of Niagara, Niagara County, New York, Site No. 932036, February 1999
- DE&S (1999) May 4, 1999 letter from DE&S addressed to Modern Corporation. RE: Test Pit Sampling Results, Former Carborundum Global Facility, Site #932036, Town of Niagara, NY.
- NYSDEC (1992) “Contained-In” Criteria for Environmental Media NYSDEC TAGM #3028, November 30, 1992
- NYSDEC (1994) Determination of Soil Cleanup Objectives and Cleanup Levels NYSDEC TAGM HWR-94-4046, January 24, 1994
- NYSDEC (1995) Identification and Listing of Hazardous Wastes. NYSDEC Division of Hazardous Substances Regulation 6 NYCRR Part 371, January 14, 1995
- NYSDEC (1996) Groundwater Monitoring Well Decommissioning Procedures. NYSDEC Division of Environmental Remediation, May 1995 revised October 1996

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Appendix A
Soil Cleanup Objectives Calculations

NYSDEC Soil Cleanup Objectives

Calculation of Allowable Soil Concentration

as per NYSDEC TAGM 4046 January 24, 1994, revised March 1998

DATA:

geometric mean of total organic carbon (TOC) soil sample results from RI =1.4%

EQUATIONS:

$$f = \text{TOC\%/100}$$

$$C_s = f * C_w * K_{oc}$$

$$\text{Soil Cleanup Objective (SCO)} = C_s * 100$$

VARIABLES:

C_s = calculated allowable soil concentration

C_w = groundwater standards in ppb from TAGM 4046

K_{oc} = partition coefficient from TAGM 4046

SAMPLE CALCULATION FOR VINYL CHLORIDE:

$$f = 1.4\%/100 \quad 0.014$$

$$C_s = 0.014 * 0.002 * 57 \quad 0.0016$$

$$\text{SCO} = 0.0016 * 100 \quad 0.16 \text{ ppm} \\ 160 \text{ ppb}$$

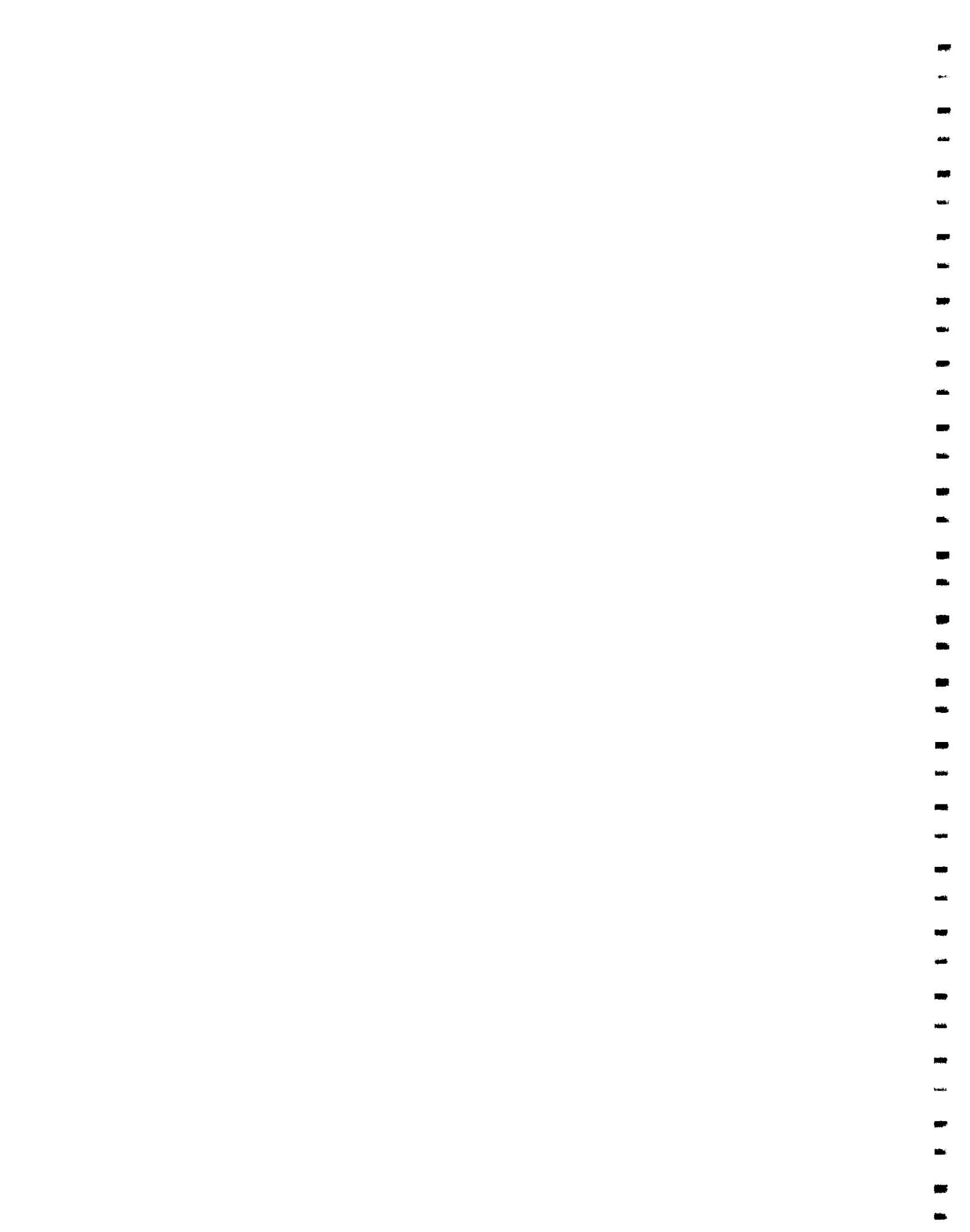
SCO was calculated for each COC. The Soil Cleanup Objective used during the IRM was the higher of the calculated SCO and the SCO from TAGM 4046. Some compounds have a maximum SCO, as indicated in TAGM 4046.

VOCs:		Cw (ppm)	Koc	Cs (ppm)	Calculated SCO(ppm)	Calculated SCO (ppb)	SCO from TAGM* (ppb)	Soil Cleanup Objective
vinyl chloride		0.002	57	0.0016	0.16	160	200	200
methylene chloride		0.005	21	0.0015	0.15	147	100	150
acetone		0.05	2.2	0.0015	0.15	154	200	200
1,2-dichloroethene (total)		0.005	59	0.0041	0.41	413	300	410
trichloroethene		0.005	126	0.0088	0.88	882	700	880
toluene		0.005	300	0.0210	2.10	2,100	1,500	2,100
ethyl benzene		0.005	1,100	0.0770	7.70	7,700	5,500	7,700
total xylenes		0.005	240	0.0168	1.68	1,680	1,200	1,680

PAHs:		Cw (ppm)	Koc	Cs (ppm)	Calculated SCO(ppm)	Calculated SCO (ppb)	SCO from TAGM* (ppb)	Soil Cleanup Objective
acenaphthylene		0.02	2,056	0.5757	57.57	57,568	41,000	57,600
anthracene		0.05	14,000	9.8	980	980,000	50,000	50,000
benzo(a)anthracene		0.000002	1,380,000	0.0386	3.86	3,864	220	3,860
benzo(a)pyrene		0.000002	5,500,000	0.1540	15.40	15,400	61	15,400
benzo(b)fluoranthene		0.000002	550,000	0.0154	1.54	1,540	1,100	1,500
benzo(k)fluoranthene		0.000002	550,000	0.0154	1.54	1,540	1,100	1,500
chrysene		0.000002	200,000	0.0056	0.56	560	400	560
dibenz(a,h)anthracene		0.05	33,000,000	23100	2310000	2,310,000,000	14	14
fluoranthene		0.05	38,000	26.6	2660	2,660,000	50,000	50,000
fluorene		0.05	7,300	5.11	511	511,000	50,000	50,000
indeno(1,2,3-cd)pyrene		0.000002	1,600,000	0.0448	4.48	4,480	3,200	4,480
naphthalene		0.01	1,300	0.1820	18.20	18,200	13,000	18,200
phenanthrene		0.05	4,365	3.0555	305.55	305,550	50,000	50,000
pyrene		0.05	13,295	9.3065	930.65	930,650	50,000	50,000

* based on 1% TOC

Appendix B
Summary of Air Dispersion Modeling



**Contaminant Emission Rate and
Atmospheric Dispersion Modeling
for the Former Carborundum Company -
Electric Products Division, Hyde Park Facility
Town of Niagara, Niagara County, New York
SITE NO. 932036**

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1 Air Dispersion Modeling

An air dispersion model was constructed to qualitatively evaluate the impact of excavation activities on employees currently working at the former Carborundum Company Facility, and to the general public in the vicinity of the site. In addition, the air model was used to help develop a work plan to minimize potential air impacts during execution of the IRM. Concerns for potential emission or volatilization of contaminants into the air during excavation and removal of contaminated soil were evaluated by constructing the air model to simulate predicted conditions during excavation at the site. This simulation was constructed to mimic site weather, wind pattern, and contaminant concentrations in soil (as understood following the IRM borehole drilling and soil sampling) as closely as possible.

1.1 Model Selection

Models/methods chosen for the purpose of estimating the impact of excavation operations at the former Carborundum Company facility site are described in the sections below.

1.1.1 Emission Rates

An emission rate is the mass of a contaminant that is released per unit area, per unit time. For the purpose of dispersion modeling the emission rate required was in the units of grams per square meter per second ($\text{g/m}^2/\text{s}$)

Emission rates were calculated using the method described in the USEPA Control Technology Center "EPA-600/R-97-116" document "Air Emissions from the Treatment of Soils Contaminated with Petroleum Fuels and Other Sources" October 1997. The details of emission rate calculations and the governing equations are described in this document. Emission rates for excavation operations are not well documented/researched, however, this document summarizes available information on air emissions from the treatment of soils contaminated with volatile organic compounds.

1.1.2 Downwind Concentration

The airborne concentrations of contaminants downwind of the excavation area(s) were calculated using the USEPA air dispersion model "Industrial Source Complex, Short Term Dispersion Model Version 3 (ISCST3)". The basis of the ISCST3 model is the straight line, steady state gaussian plume equation. The model estimates the downwind concentration for each hour of input meteorological data, and calculates user defined short-term average concentrations at user defined receptor locations. The details of ISCST3 and its governing equations are described in the model documentation (Users

Guide for the Industrial Source Complex (ISC) Dispersion Models: Volume I – User Instructions, Volume II – Description of Model Algorithms). Meteorological data for wind speed, direction, air temperature, stability class, Urban and Rural mixing heights, were obtained from Bee-Line Software for Buffalo, NY, for 1994 (the most recent data available at the time of the modeling).

1.2 Model Assumptions

1.2.1 Emission Rate

The emission rate calculations were made using various assumptions. Some of these assumptions are inherent to the emission rate model, others were necessary for site specific reasons.

The assumptions required by the model included:

- Several parameters such as the soil-gas to atmosphere exchange constant, equilibrium coefficient, bulk density of the soil and gas-phase mass transfer coefficient had to be assumed. Assumptions used are default parameters listed in “Air Emissions from the Treatment of Soils Contaminated with Petroleum Fuels and Other Sources” for fine-grained soils.
- Contaminant concentrations in soils are homogeneously distributed.

Other assumptions used in estimating contaminant emission rates from soil include:

- Average contaminant concentration exists throughout excavation based on all analytical results including 50% of the detection limit for contaminant concentrations below detection limit. This method was believed to most accurately reflect contaminant concentrations observed at the site.

1.2.2 Downwind Concentration

The downwind concentrations of contaminants were estimated using various assumptions. Some of these assumptions are inherent to the atmospheric dispersion model, others were necessary for site specific reasons.

The industrial source complex short-term dispersion model assumes the following:

- Air turbulence is random and the concentration distribution of the pollutant about the centerline, vertically and horizontally, has a Gaussian (normal) distribution.

- The plume is assumed to have standard deviations about the centerline of the plume (horizontal standard deviation σ_y , vertical standard deviation σ_z). These standard deviations are functions of atmospheric stability class and the downwind distance from the source.

1.3 Modeled Scenarios

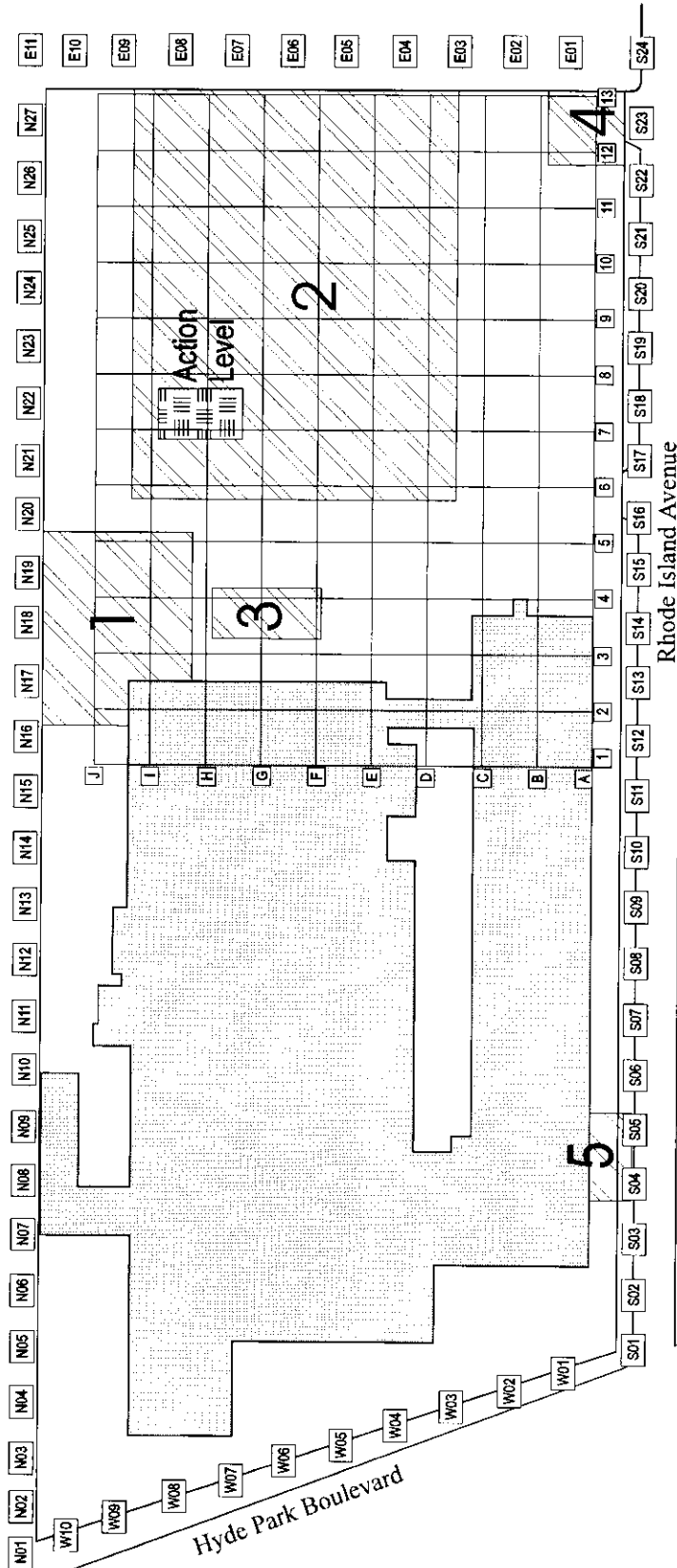
ISCST3 estimates the downwind concentration for each hour of input meteorological data at user defined receptors, and then calculates user defined short-term average concentrations these locations. The details of ISCST3 and its governing equations are described in the model documentation (Users Guide for the Industrial Source Complex (ISC) Dispersion Models: Volume I – User Instructions, Volume II – Description of Model Algorithms). Figure 1 shows the approximate location of the contaminated areas and the receptors modeled.

The 6 areas modeled for this exercise are shown on Figure 1. The area numbers correspond to those used to identify contaminated areas for the IRM. Area perimeters were adjusted for ease of model input. In the modeling scenarios described below, each receptor receives contaminants from each area individually and also from all areas at once. For example, model output for Receptor S20 allows differentiation between contaminants from individual areas 1, 2, Action Level, 3, 4 or 5 individually (simulating one area being actively excavated at a time, a reasonable assumption). Output also includes contaminants contributed from all areas to Receptor S20 (simulating all areas being actively excavated at the same time – a very conservative assumption).

The receptors modeled for this exercise include both off-site receptors and on-site receptors. Off-site receptors were modeled along the perimeter of the property and are shown on Figure 1 as North (N1-27), South (S1-24), West (W1-10) and East (E1-11). On-site receptors were modeled using a grid of receptor points, shown on Figure 1 as A1 – J13.

Downwind concentrations were calculated for six scenarios. Each scenario was calculated using: a) – a full month of meteorological data, b) – a windy day, and c) – a calm day. The scenarios modeled are described below:

1. Scenario 1 assumed that all contaminated areas were open and exposed during the model run. Emission rates were assumed to be constant for 24 hours per day. A one hour average concentration was determined for each receptor, for exposure from each of the six contaminated areas separately and also from all areas cumulatively. This scenario was the most conservative because these assumptions result in highest downwind concentrations.
2. Scenario 2 assumed that all contaminated areas were open and exposed during the model run. Emission rates were assumed to be low during non-working



SCALE
0 30' 60' 120'

Figure 1

Job #:
TM8097

Air Dispersion Modelling Receptor Locations

Date:
December 21, 1999

Drawn/File Name:
MSM/Figure 1.cdr

Former Carborundum Company - Electric Products Division

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- hours (5pm to 7am) to simulate tarping/covering of the excavations overnight. A one hour average concentration was determined for each receptor, for exposure from each of the six contaminated areas separately and also from all areas cumulatively.
3. Scenario 3 assumed that $\frac{1}{2}$ of the contaminated areas were open and exposed during the model run. Emission rates were assumed to be low during non-working hours (5pm to 7am) to simulate tarping/covering of the excavations overnight. A one hour average concentration was determined for each receptor, for exposure from each of the six contaminated areas separately and also from all areas cumulatively.
 4. Scenario 4 assumed that $\frac{1}{4}$ of the contaminated areas were open and exposed during the model run. Emission rates were assumed to be low during non-working hours (5pm to 7am) to simulate tarping/covering of the excavations overnight. A one hour average concentration was determined for each receptor, for exposure from each of the six contaminated areas separately and also from all areas cumulatively.
 5. Scenario 5 assumed that $\frac{1}{16}$ of the contaminated area labeled as Area 2 in Figure 1 was open and exposed during the model run. The location of the exposed portion of Area 2 was modeled at the southwest corner. Emission rates were assumed to be low during non-working hours (5pm to 7am) to simulate tarping/covering of the excavations overnight. A one hour average concentration was determined for each receptor, for exposure from Area 2. This model run was the least conservative because these assumptions result in the lowest downwind concentrations.
 6. Scenario 6 assumed that $\frac{1}{16}$ of the contaminated area labeled as Area 2 in Figure 1 was open and exposed during the model run. The location of the exposed portion was modeled at the east property boundary in southeast corner of Area 2. Emission rates were assumed to be low during non-working hours (5pm to 7am) to simulate tarping/covering of the excavations overnight. A one hour average concentration was determined for each receptor, for exposure from Area 2. This model run was the least conservative because these assumptions result in the lowest downwind concentrations.

Scenario 4 was used for decisions concerning allowable exposed excavation areas because it is the most reasonable scenario, given the estimated volume of soil that could be excavated per day. Site layout, surface obstructions and work area traffic requirements would not allow more than 25% of excavation areas to be open and active at one time. Scenarios assuming >25% open area were considered inappropriate. Scenario 4 was used rather than Scenarios 5 or 6 because it simulated the greatest open area and is therefore more conservative.

1.4 Model Calibration and Verification

The ISCST3 model was to be calibrated by estimating the concentrations expected during a small excavation on the north side of the former Carborundum Company Facility site and comparing the model results with actual air concentration data from the field. This information was to be used to calibrate the model for the large excavation. It was decided not to proceed with the small excavation prior to the main excavation, therefore calibration of the atmospheric dispersion model was not conducted.

1.5 Sensitivity Analysis

The emission rate calculations were determined to be most sensitive to the area of excavation. More open area resulted in greater downwind concentrations. Other parameters tested were air temperature and contaminant concentration.

Changes in temperature resulted in changes in downwind concentration due to increased or decreased emission rates. Warmer temperatures resulted in higher emission rates and therefore higher downwind concentrations. Because the model runs simulated work in February, emission rates and therefore downwind concentrations would be higher for any work done in warmer weather.

Changes in contaminant concentration also resulted in changes in downwind concentration due to increased or decreased emission rates. Higher concentration of contaminants in soils resulted in higher emission rates and therefore higher downwind concentrations.

2 Model Results

2.1 Emission Rates

Emission rates calculated using the method described in “Air Emissions from the Treatment of Soils Contaminated with Petroleum Fuels and Other Sources” for Scenario 4 are shown in Table 1. These are the emission rates used for each area in the Industrial Source Complex (ISC) Dispersion Model.

Table 1 Emission Rates for Scenario 4

Excavation Area	Average Molecular Weight (g/mole)	Calculated Emission Rate (g / (m ² * s))	Equivalent Concentration from ISC Model to 5ppm (µg/m ³)
Area 1	211.7	0.0172	48,103
Area 2	110.2	0.000629	25,040
Action	110.6	0.104	25,142
Area 3	107	0.00087	24,313
Area 4	63.7	0.000041	14,474
Area 5	100.7	0.000316	22,881
Overall	204.1	NA	46,371

The average molecular weight is a weighted average based on the individual contaminants' molecular weight and percentage contribution to the emission rate. The average molecular weight is used to convert the ISCST3 model output of µg/m³ to ppm. The average molecular weight and calculated emission rate of the area-specific contaminant mix and concentrations for each excavation area were used to determine the ISCST3 model equivalent to 5ppm, the maximum concentration allowable before action is required in the IRM health and safety plan. The last column shows the calculated equivalent concentration from the ISCST3 model to 5ppm. This allows a comparison of model output to a measurement that can be made in the field using a photoionization detector (PID).

Table 2 shows the calculation for the emission rate for Area 2 provided in Table 1. The soil concentration used for this calculation is based on the average of detected soil contaminants and 50% of the detection limit for non-detected parameters.

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Table 2 Emission Rate Calculation for Area 2

	Molecular Weight	Reported Vapour Pressure		Boiling Point	Soil Concentration Ave (%)	Total Mass of Contaminant in soil (M)		Emission Rate based on Total Mass	Mass Loading (Cs)
		mmHg	C			M	g		
Units	g/mole			K	ug/g	Equ 3.1	Equ 3.1	g/s	g/cm ³
Equation Number						Equ 3.1	Equ 3.1	Equ 3.2	Equ 3.6
VOCs									
Vinyl Chloride	63	2.66E+03	20	260	0.1020	2,750	907	1.6E-03	2.0E-07
Methylene Chloride	85	3.49E+02	20	313	0.0960	2,589	854	1.5E-03	1.9E-07
Trichloroethene (Trichloroethylene)	131	6.00E+01	20	360	1.1563	31,185	10,291	1.8E-02	2.3E-06
Acetone	58	2.70E+02	20	329	0.2100	5,664	1,869	3.3E-03	4.2E-07
1,2 Dichloroethene(cis + trans)	97	3.26E+02	20	321	0.7441	20,069	6,623	1.2E-02	1.5E-06
Toluene	92	2.20E+01	20	384	0.2352	6,344	2,094	3.7E-03	4.7E-07
Ethyl benzene	106	7.00E+00	20	409	0.2092	5,642	1,862	3.3E-03	4.2E-07
Total Xylenes (All of m, o, p)	106	1.00E+01	20	413	0.4159	11,217	3,702	6.5E-03	8.3E-07
PAHs									
Acenaphthylene	152	2.90E-02	20	553	0.0000	0	0	0.0E+00	0.0E+00
Anthracene	178	1.70E-05	25	613	0.0000	0	0	0.0E+00	0.0E+00
Benzo(a)anthracene	228	2.20E-08	20	673	0.0000	0	0	0.0E+00	0.0E+00
Benzo(a)pyrene	252	5.60E-09	25	768	0.0000	0	0	0.0E+00	0.0E+00
Benzo(b/k)fluoranthene	252	5.00E-07	20	630	0.0000	0	0	0.0E+00	0.0E+00
Chrysene	228	6.30E-09	25	721	0.0000	0	0	0.0E+00	0.0E+00
Fluoranthene	202	5.00E-06	25	648	0.0000	0	0	0.0E+00	0.0E+00
Fluorene	166	7.10E-04	20	571	0.0000	0	0	0.0E+00	0.0E+00
Indeno(1,2,3-cd)pyrene	276	1.00E-10	20	809	0.0000	0	0	0.0E+00	0.0E+00
Naphthalene	128	5.40E-02	20	491	0.0000	0	0	0.0E+00	0.0E+00
Phenanthrene	178	9.60E-04	25	613	0.0000	0	0	0.0E+00	0.0E+00
Pyrene	202	2.50E-06	25	751	0.0000	0	0	0.0E+00	0.0E+00

Equations are from "Air Emissions from the Treatment of Soils Contaminated with Petroleum Fuels and Other Substances," USEPA, October 1997.

Table 2 Emission Rate Calculation for Area 2 (Continued)

Units Equation Number	Variable Vapour Pressure		Emission Rate		Emission Rate Diffusion		Check ER Pore Space against Eqn 3.8 if -ve use Eqn 3.8	Emission Rate Pore Space	Emission Rate Total	Emission Rate / m ²
	A	B	P	Pore Space g/s	A	B	Ave (%)			
	Equ A.12 page D-10	Equ A.12 page D-10	Equ A.12 page D-10	Equ 3.4	Equ 3.5	Equ 3.5	Equ 3.5	Equ 3.8	Equ 3.3	g/s/m ²
VOCs										
Vinyl Chloride	-2745	3.2E-04	1.1E+03	1.1E+00	3.81	106.92	0.005	-2.E+06	5.3E-04	0.0059
Methylene Chloride	-3312	3.2E-04	1.2E+02	1.7E-01	3.81	106.92	0.005	-3.E+05	4.9E-04	0.0055
Trichloroethene (Trichloroethylene)	-3803	3.2E-04	1.8E+01	3.8E-02	3.81	106.92	0.061	-6.E+04	6.0E-03	0.0665
Acetone	-3481	3.2E-04	8.9E+01	8.5E-02	3.81	106.92	0.011	-1.E+05	1.1E-03	0.0121
1,2 Dichloroethene(cis + trans)	-3389	3.2E-04	1.1E+02	1.8E-01	3.81	106.92	0.039	-3.E+05	3.8E-03	0.0428
Toluene	-4056	3.2E-04	6.1E+00	9.1E-03	3.81	106.92	0.012	-1.E+04	1.2E-03	0.0135
Ethyl benzene	-4326	3.2E-04	1.8E+00	3.1E-03	3.81	106.92	0.011	-3.E+03	1.1E-03	0.0120
Total Xylenes (All of m, o, p)	-4386	3.2E-04	2.5E+00	4.3E-03	3.81	106.92	0.022	-4.E+03	2.1E-03	0.0239
PAHs										
Acenaphthylene	-5846	3.2E-04	4.5E-03	1.1E-05	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Anthracene	-6479	3.8E-04	1.5E-06	4.4E-09	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Benzo(a)anthracene	-7114	3.2E-04	2.3E-09	8.5E-12	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Benzo(a)pyrene	-8118	3.8E-04	2.7E-10	1.1E-12	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Benzo(b,k)fluoranthene	-6660	3.2E-04	6.0E-08	2.5E-10	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Chrysene	-7622	3.8E-04	3.6E-10	1.3E-12	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Fluoranthene	-6850	3.8E-04	3.8E-07	1.3E-09	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Fluorene	-6036	3.2E-04	1.0E-04	2.8E-07	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Indeno(1,2,3-cd)pyrene	-8552	3.2E-04	6.6E-12	3.0E-14	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Naphthalene	-5190	3.2E-04	1.0E-02	2.2E-05	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Phenanthrene	-6480	3.8E-04	8.4E-05	2.5E-07	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Pyrene	-7939	3.8E-04	1.3E-07	4.2E-10	3.81	106.92	0.000	0.0000	0.0E+00	0.0000
Emission Rate										
									(g/s)	
									0.182307	0.000629

2.2 Downwind Concentration

The results of dispersion modeling for Scenario 4 are summarized in Table 3. Table 3 shows each excavation area modeled, the scenario used, the maximum concentration of all contaminants ($\mu\text{g}/\text{m}^3$) at each property boundary and on-site receptor, the location of the maximum for each boundary and the calculated equivalent concentration of contaminants in parts per million (ppm). The ISCST3 model outputs results in $\mu\text{g}/\text{m}^3$ but ppm is preferred because field detection equipment measures concentrations in ppm.

Table 3 - Maximum Concentrations to Off-Site and On-Site Receptors

Maximum Concentrations to Off-Site Receptors at Property Boundaries and On-Site Receptors																
Area	Scenario	South Property Boundary			East Property Boundary			North Property Boundary			West Property Boundary			On-Site Receptors		
		ug/m^3	ppm	Location ¹	ug/m^3	ppm	Location ¹	ug/m^3	ppm	Location ¹	ug/m^3	ppm	Location ¹	ug/m^3	ppm	Location ¹
1	4a	6,088	0.63	S10	1,400	0.15	E4	61,190	6.36	N17	2,769	0.29	W1	181,222	18.84	J2
1	4b	3,989	0.41	S10	1,400	0.15	E4	2	0.0002	N27	2	0.0002	W1	151,391	15.74	I2
1	4c	22	0.002	S24	681	0.07	E8	5,825	0.61	N19	0	0	all west	34,702	3.61	J4
2	4a	1,433	0.29	S17	1,201	0.24	E9	1,322	0.26	N23	102	0.02	W5	7,756	1.55	F9
2	4b	1,286	0.26	S17	595	0.12	E2	0	0	all north	0	0	all west	7,057	1.41	D7
2	4c	32	0.01	S24	273	0.05	E4	57	0.01	N27	0	0	all west	1,563	0.31	E10
Action	4a	9,577	1.90	S16	4,404	0.88	E5	76,444	15.20	N22	1,192	0.24	W1	656,016	130.46	I8
Action	4b	5,755	1.14	S15	4,404	0.88	E5	0	0	all north	0	0	all west	358,050	71.21	H8
Action	4c	1	0.0002	S24	2,136	0.42	E7	2,546	0.51	N26	0	0	all west	97,412	19.37	H8
3	4a	151	0.03	S13	19	0.004	E2	289	0.06	N19	16	0.00	W1	4,121	0.85	G5
3	4b	95	0.02	S12	19	0.004	E2	0	0	all north	0	0	all west	2,030	0.42	F4
3	4c	2	0.0005	S24	9	0.002	E5	10	0.002	N25	0	0	all west	744	0.15	G5
4	4a	262	0.09	S23	53	0.02	E1	1	0.0005	N27	0.1	0.00004	W1	216	0.07	A13
4	4b	211	0.07	S23	0.04	0.00001	E1	0	0	all north	0	0	all west	0	0	all worker
4	4c	38	0.01	S24	14	0.005	E1	0	0	all north	0	0	all west	0	0	all worker
5	4a	1,520	0.33	S4	1	0.0002	E11	8	0.0016	N8	29	0.01	W1	9	0.002	F1
5	4b	1,024	0.22	S4	0.01	0.000002	E1	0	0	all north	0	0	all west	0.05	0.00001	A1
5	4c	358	0.08	S4	0.2	0.00005	E4	0.2	0.00005	N22	0	0	all west	2	0.0003	B1
All	4a	10,736	1.16	S16	6,619	0.71	E11	61,192	6.60	N17	3,116	0.34	W1	658,221	70.97	I8
All	4b	6,685	0.72	S15	5,755	0.62	E5	2	0.0002	N27	2	0.0002	W1	358,050	38.61	H8
All	4c	358	0.04	S4	2,777	0.30	E7	5,825	0.63	N19	0	0	all west	99,564	10.74	H8
1 - Describes location of receptor from Figure 1 a = full month of meteorological data b = windy day c = calm day																

1 - Describes location of receptor from Figure 1 a = full month of meteorological data b = windy day c = calm day

3 Conclusion

The results of the dispersion modeling indicate that in order to maintain downwind concentrations of contaminants below 5ppm, the action levels for air quality monitoring described in the health and safety plan, the IRM workplan must be developed to minimize surface area of excavations and stockpiles. It is recommended that a pre-characterization test pit sampling program be conducted for each contaminated area to pre-characterize the contaminated soil and eliminate the need to stockpile excavated soils on site. It is also recommended that excavation be conducted in such a way as to minimize the amount of contaminated soil that is exposed at any given time.

The results of the air modeling indicate that emission of contaminants from the site during excavation could be significantly reduced if stockpiling of contaminated soils on site could be eliminated or reduced. This would eliminate the emission of vapors from stockpiled soil. In addition, air modeling identified the need to conduct excavation in small areas as much as possible to reduce the exposure of contaminated soils to air.

Based on the air modeling work, a pre-characterization test pit sampling program was proposed. This pre-characterization of soils would allow the excavation and direct loading of soils into trucks for off-site disposal.

4 References

Users Guide for the Industrial Source Complex (ISC3) Dispersion Models. Volume 1 – Users Instructions. USEPA Office of Air Quality Planning and Standards, Emissions, Monitoring, and Analysis Division, Research Triangle Park, North Carolina, 27711. September 1995.

Users Guide for the Industrial Source Complex (ISC3) Dispersion Models. Volume II – Description of Model Algorithms. USEPA Office of Air Quality Planning and Standards, Emissions, Monitoring, and Analysis Division, Research Triangle Park, North Carolina, 27711. September 1995.

Air Emissions from the Treatment of Soils Contaminated with Petroleum Fuels and Other Substances. USEPA Office of Air and Radiation (EPA-600/R-97-116) October 1997.

1994 Meteorological Data, Bee-Line Software, Buffalo, NY, Weather Station # 14733.

Appendix C

Pre-characterization Test Pit Sampling Analytical Results

Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTPS002 Date Collected: 16-APR-99
STL Sample Number: 201646-02 Date Received: 19-APR-99
Client Name: DUKE ENGINEERING Date Extracted:
Project Name: TM8097 Date Analyzed: 19-APR-99
% Solid: 84.5 Report Date: 20-APR-99
Matrix: 3 Soil/Sldg Column: DB-624
Sample Wt/Vol: 10000ul Lab File Id: V3600.D
Level: MED Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	150		150

J. J. O'Brien 4/20/99



Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTPS003
STL Sample Number: 201646-03
Client Name: DUKE ENGINEERING
Project Name: TM8097
% Solid: 82.8
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 10000ul
Level: MED

Date Collected: 16-APR-99
Date Received: 19-APR-99
Date Extracted:
Date Analyzed: 19-APR-99
Report Date: 20-APR-99
Column: DB-624
Lab File Id: V3601.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	150		U

J. Leone 4/20/99



Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTPS006 Date Collected: 16-APR-99
STL Sample Number: 201646-06 Date Received: 19-APR-99
Client Name: DUKE ENGINEERING Date Extracted:
Project Name: TM8097 Date Analyzed: 19-APR-99
% Solid: 80.9 Report Date: 20-APR-99
Matrix: 3 Soil/Sldg Column: DB-624
Sample Wt/Vol: 10000ul Lab File Id: V3602.0
Level: MED Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	150		U



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JF Acme 4/20/99

Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTPS007
STL Sample Number: 201646-07
Client Name: DUKE ENGINEERING
Project Name: TM8097
% Solid: 86.8
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 10000ul
Level: MED

Date Collected: 16-APR-99
Date Received: 19-APR-99
Date Extracted:
Date Analyzed: 19-APR-99
Report Date: 20-APR-99
Column: DB-624
Lab File Id: V3603.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	140		U

J. P. [Signature] 4/20/99



Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTP5034 Date Collected: 16-APR-99
STL Sample Number: 201646-16 Date Received: 19-APR-99
Client Name: DUKE ENGINEERING Date Extracted:
Project Name: TH8097 Date Analyzed: 19-APR-99
% Solid: 77.7 Report Date: 20-APR-99
Matrix: 3 Soil/Stdg Column: DB-624
Sample Wt/Vol: 10000ul Lab File Id: V3604.D
Level: MED Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	150		u

J. J. Alcorn 4/20/99



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Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTPS035
STL Sample Number: 201646-17
Client Name: DUKE ENGINEERING
Project Name: TM8097
% Solid: 81.8
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 10000ul
Level: MED

Date Collected: 16-APR-99
Date Received: 19-APR-99
Date Extracted:
Date Analyzed: 19-APR-99
Report Date: 20-APR-99
Column: DB-624
Lab File Id: V3605.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl Chloride	150		U

[Signature] 4/20/99



Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTP-S039	Date Collected: 20-APR-99
STL Sample Number: 201738-01	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 21-APR-99
% Solid: 81.6	Report Date: 23-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 10000ul	Lab File Id: V3630.D
Level: MED	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl Chloride	150		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTP-S040	Date Collected: 20-APR-99
STL Sample Number: 201738-02	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 21-APR-99
% Solid: 69.1	Report Date: 23-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 10000ul	Lab File Id: V3631.D
Level: MED	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	180		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTP-S045	Date Collected: 20-APR-99
STL Sample Number: 201738-03	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 21-APR-99
% Solid: 87.6	Report Date: 23-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 10000ul	Lab File Id: V3628.D
Level: MED	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	140		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
8260B

Client ID: PCTP-S046	Date Collected: 20-APR-99
STL Sample Number: 201738-04	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TMB097	Date Analyzed: 21-APR-99
% Solid: 90.2	Report Date: 23-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 10000u1	Lab File Id: V3629.D
Level: MED	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
75-01-4	Vinyl chloride	140		U



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
STL Sample Number: 201646-20
Client I.D.: PCTPS001
Date Collected: 16-APR-99
Date Received: 17-APR-99
Comments:

Project Name: TM8097

Matrix: 3 Soil/Sldg

Analysis	Result	Units	Method	Analyzed
Flash-Point	> 200		1010	20-APR-99
Remarks:				



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NJDEP 73013

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PA 68-378

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering Project Name: T48097
 STL Sample Number: 201646-21
 Client I.D.: P0TPS005
 Date Collected: 16-APR-99 Matrix: 3 Soil/Slidg
 Date Received: 17-APR-99
 Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	21-APR-99
Barium	91.8 B	UG/L	5010	21-APR-99
Boron	2.9 U	UG/L	5010	21-APR-99
Chromium	5.7 U	UG/L	5010	21-APR-99
Cyanide, total	1.2 U	MG/KG	LAC204C01	23-APR-99
Flash Point	> 200	F	1010	21-APR-99
Lead	187 U	UG/L	6010	21-APR-99
Mercury	3.2 U	UG/L	7470	26-APR-99
Percent Solids	31.8	%	160.3	19-APR-99
Reactivity	NOT REACT.			
Selenium	15.6 B	UG/L	7740	23-APR-99
Silver	3.8 U	UG/L	5010	21-APR-99
Sulfide	3.9 U	MG/KG	4500-SE	23-APR-99
Total Extraction		UG/L	5010	21-APR-99
Oil	7.1 U	MG/KG	9040B	19-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering Project Name: TM8097
STL Sample Number: 201646-22
Client I.D.: PCTPS008
Date Collected: 16-APR-99 Matrix: 3 Soil/Sldg
Date Received: 17-APR-99
Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	21-APR-99
Barium	38.7 B	UG/L	6010	21-APR-99
Cadmium	2.9 U	UG/L	6010	21-APR-99
Chromium	13.6	UG/L	6010	21-APR-99
Cyanide, Total	1.2 U	MG/KG	LAC204001	23-APR-99
Flash Point	> 200	F	1010	21-APR-99
Lead	187 U	UG/L	6010	21-APR-99
Mercury	0.68	UG/L	7470	26-APR-99
Percent Solids	82.1	%	160 J	19-APR-99
Reactivity	NOT REACT.			
Selenium	37.3	UG/L	7740	23-APR-99
Silver	3.8 U	UG/L	6010	21-APR-99
Sulfide	3.9 U	MG/KG	4500-SE	23-APR-99
TCLP Extraction		UG/L	6010	21-APR-99
pH	7.1		90408	19-APR-99

Remarks:



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Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
STL Sample Number: 201646-23
Client I.D.: PCTPS010
Date Collected: 16-APR-99
Date Received: 17-APR-99
Comments:

Project Name: TMB097

Matrix: 3 Soil/Sldg

Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	1590 U	UG/L	6010	21-APR-99
Barium	730 B	UG/L	6010	21-APR-99
Cadmium	29.0 U	UG/L	6010	21-APR-99
Chromium	67.0 U	UG/L	6010	21-APR-99
Cyanide, Total	1.3 U	MG/KG	LAC204001	23-APR-99
Flash Point	> 200	F	1010	21-APR-99
Lead	1870 U	UG/L	6010	21-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	76.9	%	160.3	19-APR-99
Reactivity	NOT REACT.			
Selenium	8.0 U W	UG/L	7740	23-APR-99
Silver	38.0 U	UG/L	6010	21-APR-99
Sulfide	4.2 U	MG/KG	4500-SF	23-APR-99
TCLP Extraction		UG/L	6010	21-APR-99
pH	6.9		90408	19-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering Project Name: TH8097
STL Sample Number: 201675-11
Client I.D.: PCTP-S011
Date Collected: 19-APR-99 Matrix: 3 Soil/Sldg
Date Received: 20-APR-99
Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	23.4	UG/L	6010	23-APR-99
Barium	140 B	UG/L	6010	23-APR-99
Cadmium	0.2 U	UG/L	6010	23-APR-99
Chromium	0.6 U	UG/L	6010	23-APR-99
Cyanide, Total	1.2 U	MG/KG	LAC20001	23-APR-99
Flash Point	> 200	F	1010	21-APR-99
Lead	6.7	UG/L	6010	23-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	81.2	%	160.3	20-APR-99
Reactivity	NOT REACT.			
Selenium	316 U	UG/L	6010	28-APR-99
Silver	1.2 U	UG/L	6010	23-APR-99
Sulfide	3.9 U	MG/KG	4500-SE	23-APR-99
TCLP Extraction		UG/L	1311	20-APR-99
pH	7.1		9040-B	21-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
 Sample Number: 201675-12
 Client I.D.: PCTP-S015
 Date Collected: 19-APR-99
 Date Received: 20-APR-99
 Comments:

Project Name: TM8097
 Matrix: 3 Soil/Sldg

Analysis	Result	Units	Method	Analyzed
Arsenic	13.0	UG/L	6010	23-APR-99
Barium	657	UG/L	6010	23-APR-99
Cadmium	0.6 U	UG/L	6010	23-APR-99
Chromium	1.8 U	UG/L	6010	23-APR-99
Cyanides Total	1.2 U	MG/KG	LAC204001	23-APR-99
Flash Point	> 200	F	1010	21-APR-99
Lead	52.2	UG/L	6010	23-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	81.3	%	160-B	20-APR-99
Reactivity	NOT REACT.			
Selenium	632 U	UG/L	6010	28-APR-99
Silver	3.6 U	UG/L	6010	23-APR-99
Sulfide	3.9 U	MG/KG	4500-SE	23-APR-99
Extraction		UG/L	1317	20-APR-99
Oil	7.1		9040-B	21-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
STL Sample Number: 201736-21
Client I.D.: PCTP-S018
Date Collected: 19-APR-99
Date Received: 21-APR-99
Comments:

Project Name: TH8097
Matrix: 3 Soil/51dg

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	26-APR-99
Barium	29.7 B	UG/L	6010	26-APR-99
Cadmium	2.9 U	UG/L	6010	26-APR-99
Chromium	6.7 U	UG/L	6010	26-APR-99
Cyanide, Total	1.3 U	MG/KG	LAG204001	26-APR-99
Flash Point	> 200	F	1010	22-APR-99
Lead	187 U	UG/L	6010	26-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	78.6	%	160.3	22-APR-99
Reactivity	NOT REACT.			
Selenium	316 U	UG/L	6010	26-APR-99
Silver	3.8 U	UG/L	6010	26-APR-99
Sulfide	4.1 U	MG/KG	4500-SE	23-APR-99
TCLP Extraction		UG/L	1311	21-APR-99
pH	7.4		9040-B	21-APR-99

Remarks:



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NYDEP 73016

CTDOHS PH-0854

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PA 68-378

MAINY049

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Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
STL Sample Number: 201736-22
Client I.D.: PCTP-S022
Date Collected: 20-APR-99
Date Received: 21-APR-99
Comments:

Project Name: TH8097

Matrix: 3 Soil/Sldg

Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	1590 U	UG/L	6010	26-APR-99
Barium	488 B	UG/L	6010	26-APR-99
Cadmium	29.0 U	UG/L	6010	26-APR-99
Chromium	67.0 U N	UG/L	6010	26-APR-99
Cyanide, Total	1.2 U	MG/KG	LAC20400T	24-APR-99
Flash Point	> 200	F	1010	23-APR-99
Lead	1870 U	UG/L	6010	26-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	83.0	%	1603	22-APR-99
Reactivity	NOT REACT.			
Selenium	8.8 U W-E	UG/L	2702	27-APR-99
Silver	38.0 U	UG/L	6010	26-APR-99
Sulfide	3.9 U	MG/KG	4500 SE	23-APR-99
TCLP Extraction		UG/L	1311	21-APR-99
pH	7.1		9040 B	21-APR-99

Remarks:



Inorganics Analysis Data Sheet Form 1 - IN	
Client Name: Duke Engineering	Project Name: TM8097
STL Sample Number: 201736-23	
Client I.D.: PCTP-S026	
Date Collected: 20-APR-99	Matrix: 3 Soil/Sldg
Date Received: 21-APR-99	
Comments:	

Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	26-APR-99
Barium	264	UG/L	6010	26-APR-99
Cadmium	2.9 U	UG/L	6010	26-APR-99
Chromium	6.7 U	UG/L	6010	26-APR-99
Cyanide, Total	1.3 U	MG/KG	LAC24001	24-APR-99
Flash Point	> 200	F	1010	23-APR-99
Lead	187 U	UG/L	6010	26-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	79.8	%	160.3	22-APR-99
Reactivity	NOT REACT.			
Selenium	316 U	UG/L	6010	28-APR-99
Silver	3.8 U	UG/L	6010	26-APR-99
Sulfide	27.5	MG/KG	4500-SE	23-APR-99
TCLP Extraction		UG/L	1311	21-APR-99
pH	7.2		9040-B	21-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering Project Name: TM8097
STL Sample Number: 201736-25
Client I.D.: RCTP-SC32
Date Collected: 20-APR-99 Matrix: 3 Soil/Sldg
Date Received: 21-APR-99
Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	26-APR-99
Barium	419	UG/L	6010	26-APR-99
Bismuth	2.9 U	UG/L	6010	26-APR-99
Chromium	6.7 U	UG/L	6010	26-APR-99
Cyanide, Total	1.3 U	MG/KG	LAC204001	24-APR-99
Flash Point	> 200	F	1010	23-APR-99
Lead	187 U	UG/L	6010	26-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	79.9	%	1603	22-APR-99
Reactivity	Not React.			
Selenium	316 U	UG/L	6010	26-APR-99
Silver	3.8 U	UG/L	6010	26-APR-99
Sulfide	4.4 U	MG/KG	4500-SE	23-APR-99
Soil Extraction		UG/L	1311	21-APR-99
Oil	6.9		9040-B	21-APR-99
Remarks:				



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
STL Sample Number: 201646-24
Client I.D.: PCTPS033
Date Collected: 16-APR-99
Date Received: 17-APR-99
Comments:

Project Name: TH8097

Matrix: 3 Soil/Sldg

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	21-APR-99
Barium	38.8 B	UG/L	6010	21-APR-99
Cadmium	2.9 U	UG/L	6010	21-APR-99
Chromium	8.3 B	UG/L	6010	21-APR-99
Cyanide, Total	1.2 U	MG/KG	6010	21-APR-99
Flash Point	> 200	F	LAC204001	23-APR-99
Lead	187 U	UG/L	1010	21-APR-99
Mercury	0.2 U	UG/L	6010	21-APR-99
Percent Solids	84.0	UG/L	7470	26-APR-99
Reactivity	NOT REACT.	2	160.3	19-APR-99
Selenium	16.9 B	UG/L	7740	23-APR-99
Silver	3.8 U	UG/L	6010	21-APR-99
Soil Hg	3.8 U	MG/KG	4500 SE	23-APR-99
TCLP Extraction	7.2	UG/L	6010	21-APR-99
pH			90408	19-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
STL Sample Number: 201646-25
Client I.D.: PCTPS036
Date Collected: 16-APR-99
Date Received: 17-APR-99
Comments:

Project Name: TM8097

STL Sample Number: 201646.25

Client I.D.: PCTPS036

Date Collected: 16-APR-99

Matrix: 3 Soil/Slag

Date Received: 17-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	1590 U	UG/L	6010	21-APR-99
Barium	647 B	UG/L	6010	21-APR-99
Cadmium	29.0 U	UG/L	6010	21-APR-99
Chromium	67.0 U	UG/L	6010	21-APR-99
Cyanide, Total	1.2 U	MG/KG	LAC204001	23-APR-99
Flash Point	> 200	F	1010	21-APR-99
Lead	1870 U	UG/L	6010	21-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	81.1	%	160.3	19-APR-99
Reactivity	NOT REACT.			
Selenium	9.0 U W	UG/L	7740	23-APR-99
Silver	38.0 U	UG/L	6010	21-APR-99
Sulfide	3.9 U	MG/KG	4500-SE	23-APR-99
TCLP Extraction		UG/L	6010	21-APR-99
pH	6.8		9040B	19-APR-99

Remarks:



Inorganics Analysis Data Sheet Form I - IN	
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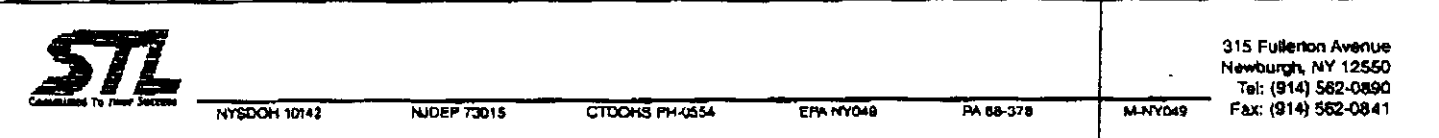
Client Name:	Duke Engineering	Project Name:	TM8097
STL Sample Number:	201736-24		
Client I.D.:	PCTP-S038		
Date Collected:	20-APR-99	Matrix:	3 Soil
Date Received:	21-APR-99		
Comments:			

Client Name:	Duke Engineering	Project Name:	TM8097
STL Sample Number:	201736-24		
Client I.D.:	PCTP-S038		
Date Collected:	20-APR-99	Matrix:	3 Soil/Sldg
Date Received:	21-APR-99		
Comments:			

Client Name:	Duke Engineering	Project Name:	TM8097
STL Sample Number:	201736-24		
Client I.D.:	PCTP-S038		
Date Collected:	20-APR-99	Matrix:	3 Soil/Sldg
Date Received:	21-APR-99		
Comments:			

Client Name:	Duke Engineering	Project Name:	TM8097
STL Sample Number:	201736-24		
Client I.D.:	PCTP-S038		
Date Collected:	20-APR-99	Matrix:	3 Soil/Sldg
Date Received:	21-APR-99		
Comments:			

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	26-APR-99
Barium	309	UG/L	6010	26-APR-99
Cadmium	2.9 U	UG/L	6010	26-APR-99
Chromium	6.7 U	UG/L	6010	26-APR-99
Cyanide Total	1.2 U	MG/KG	LAC204001	26-APR-99
Flash Point	> 200	F	SW846-1010	23-APR-99
Lead	187 U	UG/L	6010	26-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	83.1	%	160.3	22-APR-99
Reactivity	Not React.			
Selenium	316 U	UG/L	6010	28-APR-99
Silver	3.8 U	UG/L	6010	26-APR-99
Sulfide	3.9 U	MG/KG	4500 SE	23-APR-99
TCLP Extraction		UG/L	1311	21-APR-99
pH	7.0		9040-B	21-APR-99




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Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering	Project Name: TM8097
STL Sample Number: 201735-10	
Client I.D.: PCTP-5041	
Date Collected: 20-APR-99	Matrix: 3 Soil/Sldg
Date Received: 21-APR-99	
Comments:	

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	26-APR-99
Barium	93.3 B	UG/L	6010	26-APR-99
Cadmium	2.9 U	UG/L	6010	26-APR-99
Chromium	6.7 U	UG/L	6010	26-APR-99
Chromium	1.2 U	MG/KG	LAC204081	24-APR-99
Cyanide, Total	> 200	F	1010	22-APR-99
Flash Point	187 U	UG/L	6010	26-APR-99
Lead	0.2 U	UG/L	7470	26-APR-99
Mercury	82.0	%	160.3	22-APR-99
Percent Solids	NOT REACT.			
Reactivity	316 U	UG/L	6010	28-APR-99
Selenium	3.8 U	UG/L	6010	26-APR-99
Silver	3.9 U	MG/KG	4500 SE	23-APR-99
Sulfide		UG/L	1311	21-APR-99
Extraction	7.1		9040-B	23-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering

Project Name: TM8097

STL Sample Number: 201736-26

Client I.D.: PCTP-S043

Date Collected: 20-APR-99

Matrix: 3 Soil/Sldg

Date Received: 21-APR-99

Comments:

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	26-APR-99
Barium	199 B	UG/L	6010	26-APR-99
Cadmium	2.9 U	UG/L	6010	26-APR-99
Chromium	6.7 U	UG/L	6010	26-APR-99
Cyanide, Total	1.4 U	MG/KG	LAC204001	24-APR-99
Flash Point	> 200	F	1010	23-APR-99
Lead	187 U	UG/L	6010	26-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	72.7	%	160.7	22-APR-99
Reactivity	Not React.			
Selenium	318 U	UG/L	6010	28-APR-99
Silver	3.8 U	UG/L	6010	26-APR-99
Sulfide	4.4 U	MG/KG	4500 SE	23-APR-99
TCLP Extraction		UG/L	1311	21-APR-99
pH	7.1		9040-B	21-APR-99

Remarks:



Inorganics Analysis Data Sheet
Form I - IN

Client Name: Duke Engineering
STL Sample Number: 201735-09
Client I.D.: PCTP-5044
Date Collected: 20-APR-99
Date Received: 21-APR-99
Comments:

Project Name: TM8097

Matrix: 3 Soil/Sldg

Analysis	Result	Units	Method	Analyzed
Arsenic	159 U	UG/L	6010	26-APR-99
Barium	61.3 B	UG/L	6010	26-APR-99
Cadmium	2.9 U	UG/L	6010	26-APR-99
Chromium	6.7 U	UG/L	6010	26-APR-99
Cyanide, Total	1.3 U	MG/KG	LAC204001	24-APR-99
Flash Point	> 200	F	1010	21-APR-99
Lead	9420	UG/L	6010	26-APR-99
Mercury	0.2 U	UG/L	7470	26-APR-99
Percent Solids	77.7	%	160.3	22-APR-99
Reactivity	NOT REACT.			
Selenium	316 U	UG/L	6010	26-APR-99
Silver	3.8 U	UG/L	6010	26-APR-99
Sulfide	4.1 U	MG/KG	4500-SE	23-APR-99
TCLP Extraction		UG/L	1311	21-APR-99
pH	9.0		9040-B	23-APR-99

Remarks:



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTPS001
STL Sample Number: 201646-20
Client Name: Duke Engineering
Project Name: TM8097
% Solid: NA
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: X2476.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTPS005	Date Collected: 16-APR-99
STL Sample Number: 201646-21	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TP8097	Date Analyzed: 23-APR-99
% Solid: 81.8	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 0.25ml	Lab File Id: X2477.D
Level: LOW	Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-56-3	Chloroform	200		U
107-36-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-82608

Client ID: PCTPS008	Date Collected: 16-APR-99
STL Sample Number: 201646-22	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 23-APR-99
% Solid: 82.1	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 0.25ml	Lab File Id: X2478.D
Level: LOW	Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-82608

Client ID: PCTPS010	Date Collected: 16-APR-99
STL Sample Number: 201646-23	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 23-APR-99
% Solid: 76.9	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 0.25ml	Lab File Id: X2479.D
Level: LOW	Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200	28	U
75-01-4	Vinyl Chloride	200		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-S011
STL Sample Number: 201675-11
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.2
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: X2482.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethane	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200	190	U
75-01-4	Vinyl Chloride	200		U



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Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-B2608

Client ID: PCTP-SC15
STL Sample Number: 201675-12
Client Name: Duke Engineering
Project Name: T48097
Solids: 81.3
Matrix: 3 Soil/Slog
Sample wt./Vol: 0.25ml
Level: LCM

Date Collected: 19 APR-99
Date Received: 20 APR-99
Date Extracted:
Date Analyzed: 23 APR-99
Report Date: 27 APR-99
Column: DB-624
Lab File Id: X2483.D
Dilution Factor: 20.00

DAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-33-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
102-20-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
127-06-2	1,2-Dichloroethane	200		U
75-06-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-06-5	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-S018
STL Sample Number: 201736-21
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 78.6
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 19-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: X2489.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethane	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200	39	U



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Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-S022	Date Collected: 20-APR-99
STL Sample Number: 201736-22	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 24-APR-99
% Solid: 83.0	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 0.25ml	Lab File Id: X2493.D
Level: LOW	Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200	34	J
75-01-4	Vinyl Chloride	200		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-S026
STL Sample Number: 201736-23
Client Name: Duke Engineering
Project Name: TH8097
% Solid: 79.9
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: X2494.D
Dilution Factor: 2000

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-03-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



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Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-S032
STL Sample Number: 201736-25
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 79.9
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: X2496.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-33-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
118-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-31-6	Trichloroethene	200		U
75-31-4	Vinyl Chloride	200	44	U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTPS033
STL Sample Number: 201646-24
Client Name: Duke Engineering
Project Name: TMB097
% Solid: 84.0
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: X2480.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



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Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTPS036
STL Sample Number: 201646-25
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.1
Matrix: 3 Soil/Slag
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: X2481.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethane	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200	860	U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-5038	Date Collected: 20 APR-99
STL Sample Number: 201736-24	Date Received: 21 APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 24 APR-99
% Solid: 83.1	Report Date: 28 APR-99
Matrix: 3 Soil/Sldg	Column: DB 624
Sample Wt/Vol: 0.25ml	Lab File Id: X2495.D
Level: LOW	Dilution Factor: 20 00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



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Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-5041
STL Sample Number: 201735-10
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 82.0
Matrix: 3 Soil/Sldg
Sample wt/Vol: 0.25ml
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: X2484.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
79-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-56-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200	29	J
75-01-4	Vinyl Chloride	200		U



Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-S043
STL Sample Number: 201736-26
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 72.7
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 0.25ml
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: X2497.D
Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



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Volatile Organics Analysis Data Sheet
Form 1 VOA
TCLP-8260B

Client ID: PCTP-5044	Date Collected: 20-APR-99
STL Sample Number: 201735-09	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 23-APR-99
% Solid: 77.7	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: DB-524
Sample Wt/Vol: 0.25ml	Lab File Id: X2484.D
Level: LOW	Dilution Factor: 20.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
71-43-2	Benzene	200		U
78-93-3	2-Butanone	200		U
56-23-5	Carbon Tetrachloride	200		U
108-90-7	Chlorobenzene	200		U
67-66-3	Chloroform	200		U
107-06-2	1,2-Dichloroethane	200		U
75-35-4	1,1-Dichloroethene	200		U
127-18-4	Tetrachloroethene	200		U
79-01-6	Trichloroethene	200		U
75-01-4	Vinyl Chloride	200		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTPS005
STL Sample Number: 201646-21
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.8
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted: 20-APR-99
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB-5
Lab File Id: 36P4650P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	5		U
1024-57-3	Heptachlor Epoxide	5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



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Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTPS008

Date Collected: 16-APR-99

STL Sample Number: 201646-22

Date Received: 17-APR-99

Client Name: Duke Engineering

Date Extracted: 20-APR-99

Project Name: TY8097

Date Analyzed: 23-APR-99

% Solid: 82.1

Report Date: 27-APR-99

Matrix: 3 Soil/Slag

Column: DB-5

Sample Wt/Vol: 100ml

Lab File Id: 36P4651P.D

Level: LOW

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
75-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCIP-8081A

Client ID: PCTPS010
STL Sample Number: 201646-23
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 76.9
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted: 20-APR-99
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB-5
Lab File Id: 36P4652P.D

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



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Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-S011
STL Sample Number: 201675-11
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.2
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted: 21-APR-99
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-5
Lab File Id: 36P4640P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-S015	Date Collected: 19-APR-99
STL Sample Number: 201675-12	Date Received: 20-APR-99
Client Name: Duke Engineering	Date Extracted: 21-APR-99
Project Name: TM8097	Date Analyzed: 23-APR-99
% Solid: 81.3	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: DB-5
Sample Wt/Vol: 100ml	Lab File Id: 36P4641P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	.5		U
8001-35-2	Toxaphene	50		U



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Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-5018
STL Sample Number: 201736-21
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 78.6
Matrix: 3 Soil/STdg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 19-APR-99
Date Received: 21-APR-99
Date Extracted: 22-APR-99
Date Analyzed: 24-APR-99
Report Date: 26-APR-99
Column: D6-5
Lab File Id: 36P4666P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
9001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-S022
STL Sample Number: 201736-22
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 83.0
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted: 22-APR-99
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-5
Lab File Id: 36P4667P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



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Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-S026	Date Collected: 20-APR-99
STL Sample Number: 201736-23	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: TM8097	Date Analyzed: 24-APR-99
% Solid: 79.9	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: D8-5
Sample Wt/Vol: 100ml	Lab File Id: 36P4668P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



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Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-S032
STL Sample Number: 201736-25
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 79.9
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LDW

Date Collected: 20 APR-99
Date Received: 21 APR-99
Date Extracted: 22 APR-99
Date Analyzed: 24 APR-99
Report Date: 28 APR-99
Column: DB-5
Lab File Id: 36P4670P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	5		U
1024-57-3	Heptachlor Epoxide	5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



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Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTPS033	Date Collected: 16-APR-99
STL Sample Number: 201646-24	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted: 20-APR-99
Project Name: TM8097	Date Analyzed: 23-APR-99
% Solid: 84.0	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-5
Sample Wt/Vol: 100ml	Lab File Id: 36P4653P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	5		U
57-74-9	Chlordane	10		U
72-29-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTPS036	Date Collected: 16-APR-99
STL Sample Number: 201646-25	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted: 20-APR-99
Project Name: TM8097	Date Analyzed: 23-APR-99
% Solid: 81.1	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-5
Sample Wt/Vol: 100ml	Lab File Id: 36P4654P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC(Lindane)	.5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1024-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-5038	Date Collected: 20-APR-99
STL Sample Number: 201736-24	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: TM8097	Date Analyzed: 24-APR-99
% Solid: 83.1	Report Date: 26-APR-99
Matrix: 3 Soil/Sldg	Column: DB-5
Sample Wt/Vol: 100ml	Lab File Id: 36P4669P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	5		U
1024-57-3	Heptachlor Epoxide	5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-5041
STL Sample Number: 201735-10
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 82.0
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 20 APR-99
Date Received: 21 APR-99
Date Extracted: 22 APR-99
Date Analyzed: 24 APR-99
Report Date: 28 APR-99
Column: DB-5
Lab File Id: 36P4665P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	5		U
1024-57-3	Heptachlor Epoxide	5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-S043
STL Sample Number: 201/36-26
Client Name: Duke Engineering
Project Name: TM8097
* Solid: /2.7
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted: 22-APR-99
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-5
Lab File Id: 36P4671P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	5		U
1024-57-3	Heptachlor Epoxide	5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Pesticide Organics Analysis Data Sheet
Form 1 PEST
TCLP-8081A

Client ID: PCTP-5044
STL Sample Number: 201735-09
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 77.7
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 100ml
Level: LOW

Date Collected: 20 APR-99
Date Received: 21 APR-99
Date Extracted: 22 APR-99
Date Analyzed: 24 APR-99
Report Date: 28 APR-99
Column: DB 5
Lab File Id: 3674664P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
58-89-9	gamma-BHC (Lindane)	5		U
57-74-9	Chlordane	10		U
72-20-8	Endrin	1		U
76-44-8	Heptachlor	.5		U
1824-57-3	Heptachlor Epoxide	.5		U
72-43-5	Methoxychlor	5		U
8001-35-2	Toxaphene	50		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP5005 Date Collected: 16-APR-99
STL Sample Number: 201646-21 Date Received: 17-APR-99
Client Name: Duke Engineering Date Extracted: 20-APR-99
Project Name: TM8097 Date Analyzed: 24-APR-99
% Solid: 81.8 Report Date: 27-APR-99
Matrix: 3 Soil/Sldg Column: DB-17
Sample Wt/Vol: 50ml Lab File Id: 34P4542P.D
Level: LOW Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	5		U
93-72-1	2,4,5-TP (Silvex)	5		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTPS008	Date Collected: 16-APR-99
STL Sample Number: 201646-22	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted: 20-APR-99
Project Name: TM8097	Date Analyzed: 24-APR-99
X Solid: 82.1	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-17
Sample Wt/Vol: 50ml	Lab File Id: 34P4543P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	5		U
93-72-1	2,4,5-TP (Silvex)	.5		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTPS010	Date Collected: 16-APR-99
STL Sample Number: 201646-23	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted: 20-APR-99
Project Name: TM8097	Date Analyzed: 24-APR-99
% Solid: 76.9	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-17
Sample Wt/Vol: 50ml	Lab File Id: 34P4544P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (STIvex)	.5		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-S011	Date Collected: 19 APR-99
STL Sample Number: 201675-11	Date Received: 20 APR-99
Client Name: Duke Engineering	Date Extracted: 21 APR-99
Project Name: TM8097	Date Analyzed: 24 APR-99
% Solid: 81.2	Report Date: 28 APR-99
Matrix: 3 Soil/Sldg	Column: DB 17
Sample Wt/Vol: 50ml	Lab File Id: 34P4534P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	5		U
93-72-1	2,4,5-TP (S11vex)	5		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-S015
STL Sample Number: 201675-12
Client Name: Duke Engineering
Project Name: TMB097
% Solid: 81.3
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 50ml
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted: 21-APR-99
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-17
Lab File Id: 34P45345.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCIP-S018	Date Collected: 19-APR-99
STL Sample Number: 201736-21	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: 1M8097	Date Analyzed: 27-APR-99
% Solid: 78.6	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: TCLP-8151A
Sample Wt/Vol: 50ml	Lab File Id: 34P4578P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	5		U
93-72-1	2,4,5-TP (Silvex)	.5		U



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Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-S022	Date Collected: 20-APR-99
STL Sample Number: 201736-22	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: TM8097	Date Analyzed: 27-APR-99
% Solid: 83.0	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: TCLP-8151A
Sample Wt/Vol: 50ml	Lab File Id: 34P4579P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7 93-72-1	2,4-D 2,4,5-TP (Silvex)	5 .5		U U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-S026	Date Collected: 20-APR-99
SIL Sample Number: 201736-23	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: TH8097	Date Analyzed: 27-APR-99
% Solid: 79.9	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: TCLP-8151A
Sample Wt/Vol: 50ml	Lab File Id: 3404580P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U



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Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCIP-8151A

Client ID: PCTP-5032	Date Collected: 20-APR-99
STL Sample Number: 201736-25	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: TM8097	Date Analyzed: 27-APR-99
% Solid: 79.9	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: TCIP-8151A
Sample Wt/Vol: 50ml	Lab File Id: 3494582P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	0.5	0.5	U
93-72-1	2,4,5-TP (Silvex)	0.5	0.5	U



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Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP5033
STL Sample Number: 201646-24
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 84.0
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 50ml
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted: 20-APR-99
Date Analyzed: 24-APR-99
Report Date: 27-APR-99
Column: DB-17
Lab File Id: 34P4545P.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7 93-72-1	2,4-D 2,4,5-TP (Silvex)	5 .5		U U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTPS036	Date Collected: 16-APR-99
STL Sample Number: 201646-25	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted: 20-APR-99
Project Name: TM8097	Date Analyzed: 24-APR-99
% Solid: 81.1	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg.	Column: DB-17
Sample Wt/Vol: 50ml	Lab File Id: 34P4546P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	5		U
93-72-1	2,4,5-TP (Silvex)	5		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-S038	Date Collected: 20 APR-99
STL Sample Number: 201736-24	Date Received: 21 APR-99
Client Name: Duke Engineering	Date Extracted: 22 APR-99
Project Name: TM8097	Date Analyzed: 27 APR-99
% Solid: 83.1	Report Date: 28 APR-99
Matrix: 3 Soil/Slag	Column: TCLP-8151A
Sample Wt/Vol: 50ml	Lab File Id: 3474581P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U



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Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-5041	Date Collected: 20-APR-99
STL Sample Number: 201735-10	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: TM8097	Date Analyzed: 27-APR-99
% Solid: 82.0	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: TCLP-8151A
Sample Wt/Vol: 50ml	Lab File Id: 34P4577P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U



Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-S043

Date Collected: 20 APR-99

STL Sample Number: 201736-26

Date Received: 21 APR-99

Client Name: Duke Engineering

Date Extracted: 22 APR-99

Project Name: TM8097

Date Analyzed: 27 APR-99

% Solid: 72.7

Report Date: 28 APR-99

Matrix: 3 Soil/Sldg

Column: TCLP-8151A

Sample Wt/Vol: 50ml

Lab File Id: 34P4583P.D

Level: LOW

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7 93-72-1	2,4-D 2,4,5-TP (Silvex)	5 5		U U



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Herbicide Organics Analysis Data Sheet
Form 1 HERB
TCLP-8151A

Client ID: PCTP-5044	Date Collected: 20-APR-99
STL Sample Number: 201735-09	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted: 22-APR-99
Project Name: TM8097	Date Analyzed: 27-APR-99
% Solid: 77.7	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: TCLP-8151A
Sample Wt/Vol: 50ml	Lab File Id: 34P4576P.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/l	Conc. ug/l	Data Qualifier
94-75-7	2,4-D	.5		U
93-72-1	2,4,5-TP (Silvex)	.5		U



SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS001
 STL Lab No.: 201646-20
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid:
 Matrix: Soil pH:
 Sample Wt/Vol.: 900 ml GPC: N
 Level: Low

Date Collected: 4/16/99
 Date Received: 4/17/99
 Date Extracted: 4/20/99
 Date Analyzed: 4/21/99
 Report Date: 4/26/99
 Column: DB-5
 Lab File ID: S12232.D
 Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
91-20-3	Naphthalene	11.0	U
91-57-6	2-Methylnaphthalene	11.0	U
91-58-7	2-Chloronaphthalene	11.0	U
83-32-9	Acenaphthene	11.0	U
86-73-7	Fluorene	11.0	U
85-01-8	Phenanthrene	11.0	U
120-12-7	Anthracene	11.0	U
206-44-0	Fluoranthene	11.0	U
129-00-0	Pyrene	11.0	U
56-55-3	Benzo (a) anthracene	11.0	U
218-01-9	Chrysene	11.0	U
205-99-2	Benzo (b) fluoranthene	11.0	U
207-08-9	Benzo (k) fluoranthene	11.0	U
50-32-8	Benzo (a) pyrene	11.0	U
193-39-5	Indeno (1,2,3-cd) pyrene	11.0	U
53-70-3	Dibenz (a,h) anthracene	11.0	U
191-24-2	Benzo (g,h,i) perylene	11.0	U
208-96-8	Acenaphthylene	11.0	U

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS005
STL Lab No.: 201646-21
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol: 200ml
Level: Low

Date Collected: 4/16/99
Date Received: 4/17/99
Date Extracted: 4/20/99
Date Analyzed: 4/21/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12233.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-16-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	2,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	50.0	U
110-86-1	Pyridine	50.0	U
95-93-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS008
STL Lab No.: 201646-22
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/16/99
Date Received: 4/17/99
Date Extracted: 4/20/99
Date Analyzed: 4/21/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12234.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
106-39-4/105-44-5	3,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-3	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-93-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS010
STL Lab No.: 201646-23
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/16/99
Date Received: 4/17/99
Date Extracted: 4/20/99
Date Analyzed: 4/21/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12235.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/108-44-5	1,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	250.0	U
87-86-5	Pentachlorophenol	50.0	U
110-86-1	Pyridine	50.0	U
95-95-1	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM 1 - SV



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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS011
STL Lab No.: 201675-11
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/19/99
Date Received: 4/20/99
Date Extracted: 4/21/99
Date Analyzed: 4/22/99
Report Date: 4/27/99
Column: DB-5
Lab File ID: S12253.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
148-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	3,6-Dimethylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	50.0	U
110-86-1	Pyridine	50.0	U
95-93-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U
FORM I - SV			



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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS011RR
STL Lab No.: 201675-11RR
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/19/99
Date Received: 4/20/99
Date Extracted: 4/23/99
Date Analyzed: 4/23/99
Report Date: 4/27/99
Column: DB-5
Lab File ID: S12280.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachlorocyclopentadiene	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	2,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-95-1	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS015
STL Lab No.: 201675-12
Client Name: Duke Engineering
Project Name: TM8097

% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/19/99
Date Received: 4/20/99
Date Extracted: 4/23/99
Date Analyzed: 4/23/99
Report Date: 4/27/99
Column: DB-5
Lab File ID: S12281.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-24-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-73-1	Hexachlorocyclopentadiene	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-3	2,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-95-8	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U
FORM I - SV			



NYSOCH 10142

NJDEP 73015

CTDOHS PH-0554

EPA NY049

PA 66-378

M-NY049

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Fax: (914) 582-0841

SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS018
STL Lab No.: 201736-21
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/22/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12260.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
57-72-1	Hexachlorocyclopentadiene	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/108-44-3	2,4-Dimethylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-95-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



NYSDOH 10142

NJDEP 73015

CTDOHS PH-0564

EPA NY049

PA 88-378

NJ-NY049

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS022
STL Lab No.: 201736-22
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/22/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12261.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-24-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	3,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-93-9	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



NYSDOH 10142

NJDEP 73015

CTDOHS PH-0654

EPA NY049

PA 68-378

M-NY049

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS026
STL Lab No.: 201736-23
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/22/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12262.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-94-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-3	3,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-2	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-95-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U
FORM I - SV			



NYS DOH 10142

NIDEP 73015

CTDOHS PH-0554

EPA NY049

PA 65-378

M-NY049

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS032
STL Lab No.: 201736-25
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/23/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12266.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	3,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-95-4	1,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U
FORM I - SV			



NYSDOH 10142

NUDEP 73015

CTDOHS PH-0654

EPA NY049

PA 88-378

M-NY049

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS033
STL Lab No.: 201646-24
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol: 200ml
Level: Low

Date Collected: 4/16/99
Date Received: 4/17/99
Date Extracted: 4/20/99
Date Analyzed: 4/21/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12236.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	3,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-93-1	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



NYSDOH 10142

NJDEP 73015

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Tel: (914) 562-0890
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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS036
STL Lab No.: 201646-25
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: So11
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/16/99
Date Received: 4/17/99
Date Extracted: 4/20/99
Date Analyzed: 4/21/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12237.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachlorocyclopentadiene	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	2,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-8	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-95-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS038
STL Lab No.: 201736-24
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/22/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: 612263.D
Dilution Factor:

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	2,4-Dimethylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-99-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U

FORM I - SV



NYS DOH 10142

NJ DEP 73015

CT DOHS PH-0554

EPA NY049

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M-NY049

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS041
STL Lab No.: 201735-10
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: So11
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/22/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12264.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-12-1	Hexachlorocyclopentadiene	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-29-3/106-44-5	2,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-3	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-95-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U
FORM 1 - SV			



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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS043
STL Lab No.: 201736-26
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/23/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12267.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
118-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachloroethane	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	2,4-Methylphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-3	Pentachlorophenol	250.0	U
110-86-1	Pyridine	50.0	U
95-93-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U
FORM I - SV			



NYSDOH 10142

NUDEP 73015

CTDOHS PH-0554

EPA NY049

PA 58-378

M-NY049

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SEMI-VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS044
STL Lab No.: 201735-09
Client Name: Duke Engineering
Project Name: TM8097
% Solid:
Matrix: Soil
Sample Wt/Vol.: 200ml
Level: Low

Date Collected: 4/20/99
Date Received: 4/21/99
Date Extracted: 4/22/99
Date Analyzed: 4/22/99
Report Date: 4/26/99
Column: DB-5
Lab File ID: S12265.D
Dilution Factor: 1

CAS No.	Compound	Detection Limit ug/l	Conc ug/l
106-46-7	1,4-Dichlorobenzene	50.0	U
121-14-2	2,4-Dinitrotoluene	50.0	U
108-74-1	Hexachlorobenzene	50.0	U
87-68-3	Hexachlorobutadiene	50.0	U
67-72-1	Hexachlorocyclopentadiene	50.0	U
95-48-7	2-Methylphenol	50.0	U
108-39-4/106-44-5	3,4-Methyldiphenol	50.0	U
98-95-30	Nitrobenzene	50.0	U
87-86-5	Pentachlorophenol	50.0	U
110-86-1	Pyridine	50.0	U
95-93-4	2,4,5-Trichlorophenol	50.0	U
88-06-2	2,4,6-Trichlorophenol	50.0	U
FORM I - SV			



NYSDOH 10142

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EPA NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B (PP)

Client ID: PCTPS001
STL Sample Number: 201646-01
Client Name: Duke Engineering
Project Name: TM8097
* Solid: 81.1
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 21-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0586.0
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	2	J
67-64-1	Acetone	12	13	B
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	3	J
67-66-3	Chloroform	12	2	J
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12	1	J
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-6	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	44	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP5005
STL Sample Number: 201646-05
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.6
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 21-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0588.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	5	J
67-64-1	Acetone	12	12	B
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12	6	J
75-34-3	1,1-Dichloroethane	12	5	J
540-59-0	1,2-Dichloroethene(total)	12	17	
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12	23	
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	22	
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



NYSDOH 10142

NUDEP 73015

CTDOH 12 P11-0554

EPA NY040

PA 68-378

M-NY049

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Volatile Organics Analysis Data Sheet
Form 1 VoA
8260B(PP)

Client ID: PCTPS008
STL Sample Number: 201646-08
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 83.3
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 21-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0589.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	22	B
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	5	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	92	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260R(PP)

Client ID: PCTP5010
STL Sample Number: 201646-10
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 74.1
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 1g
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 21-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0593.D
Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	67		U
74-83-9	Bromomethane	67		U
75-01-4	Vinyl chloride	67	16	J
75-00-3	Chloroethane	67		U
75-09-2	Methylene chloride	67		U
67-64-1	Acetone	67	29	JB
75-15-0	Carbon disulfide	67		U
75-35-4	1,1-Dichloroethane	67		U
75-34-3	1,1-Dichloroethane	67		U
540-59-0	1,2-Dichloroethane(total)	67	810	U
67-66-3	Chloroform	67		U
107-06-2	1,2-Dichloroethane	67		U
78-93-3	2-Butanone	67		U
71-55-6	1,1,1-Trichloroethane	67		U
56-23-5	Carbon tetrachloride	67		U
108-05-4	Vinyl acetate	67		U
75-27-4	Bromodichloromethane	67		U
78-87-5	1,2-Dichloropropane	67		U
10061-01-5	cis-1,3-Dichloropropene	67		U
79-01-6	Trichloroethene	67	880	U
71-43-2	Benzene	67		U
124-48-1	Dibromochloromethane	67		U
10061-02-6	trans-1,3-Dichloropropene	67		U
79-00-5	1,1,2-trichloroethane	67		U
75-25-2	Bromoform	67		U
108-10-1	4-Methyl-2-pentanone	67		U
591-78-6	2-Hexanone	67		U
79-34-5	1,1,2,2-Tetrachloroethane	67		U
127-18-4	Tetrachloroethene	67		U
108-88-3	Toluene	67	330	U
108-90-7	Chlorobenzene	67		U
100-41-4	Ethylbenzene	67	1900	E
100-42-5	Styrene	67		U
1330-20-7	Xylenes, Total	67	5800	E
110-75-8	2-Chloroethylvinylether	67		U
95-50-1	1,2-Dichlorobenzene	67	170	U
541-73-1	1,3-Dichlorobenzene	67		U
106-46-7	1,4-Dichlorobenzene	67		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTPS010DL
 STL Lab No.: 201646-10DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 74.1
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: med
 Soil Extract Volume: 10000 ul

Date Collected: 4/16/99
 Date Received: 4/17/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/26/99
 Column: DB-624
 Lab File ID: V3666.D
 Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1700.0	U
74-83-9	Bromomethane	1700.0	U
75-01-4	Vinyl Chloride	1700.0	U
75-00-3	Chloroethane	1700.0	U
75-09-2	Methylene Chloride	1700.0	U
67-64-1	Acetone	1700.0	U
75-15-0	Carbon Disulfide	1700.0	U
75-35-4	1,1-Dichloroethene	1700.0	U
75-34-3	1,1-Dichloroethane	1700.0	U
540-59-0	1,2-Dichloroethene, Total	1700.0	290.0 J D
67-66-3	Chloroform	1700.0	U
107-06-2	1,2-Dichloroethane	1700.0	U
78-93-3	2-Butanone	1700.0	1500.0 J D B
71-55-6	1,1,1-Trichloroethane	1700.0	U
56-23-5	Carbon Tetrachloride	1700.0	U
108-05-4	Vinyl Acetate	1700.0	U
75-27-4	Bromodichloromethane	1700.0	U
78-87-5	1,2-Dichloropropane	1700.0	U
10061-01-5	cis-1,3-Dichloropropene	1700.0	U
79-01-6	Trichloroethene	1700.0	340.0 J D
71-43-2	Benzene	1700.0	U
124-48-1	Dibromochloromethane	1700.0	U
10061-02-6	trans-1,3-Dichloropropene	1700.0	U
79-00-5	1,1,2-Trichloroethane	1700.0	U
75-25-2	Bromoform	1700.0	U
108-10-1	4-Methyl-2-Pentanone	1700.0	U
591-78-6	2-Hexanone	1700.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1700.0	U
127-18-4	Tetrachloroethene	1700.0	U
108-88-3	Toluene	1700.0	U
108-90-7	Chlorobenzene	1700.0	U
100-41-4	Ethylbenzene	1700.0	1200.0 J D
100-42-5	Styrene	1700.0	U
1330-20-7	Xylenes, Total	1700.0	5400.0 D
110-73-8	2-Chloroethyl Vinyl ether	1700.0	U
95-50-1	1,2-Dichlorobenzene	1700.0	U
541-73-1	1,3-Dichlorobenzene	1700.0	U
106-46-7	1,4-Dichlorobenzene	1700.0	U

FORM I - VOA



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S011
STL Sample Number: 201675-01
Client Name: Duke Engineering
Project Name: TH8097
% Solid: 79.8
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted:
Date Analyzed: 22-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0508.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	13		U
74-83-9	Bromomethane	13		U
75-01-4	Vinyl chloride	13		U
75-00-3	Chloroethane	13	24	U
75-09-2	Methylene chloride	13		U
67-64-1	Acetone	13		U
75-15-0	Carbon disulfide	13	13	U
75-35-4	1,1-Dichloroethene	13		U
75-34-3	1,1-Dichloroethane	13	2	J
540-59-0	1,2-Dichloroethene (total)	13		U
67-66-3	Chloroform	13	290	E
107-06-2	1,2-Dichloroethane	13		U
78-93-3	2-Butanone	13		U
71-55-6	1,1,1-Trichloroethane	13		U
56-23-5	Carbon tetrachloride	13		U
108-05-4	Vinyl acetate	13		U
75-27-4	Bromodichloromethane	13		U
78-87-5	1,2-Dichloropropane	13		U
10061-01-5	cis-1,3-Dichloropropene	13		U
79-01-6	Trichloroethene	13		U
71-43-2	Benzene	13	1100	E
124-48-1	Dibromochloromethane	13	3	J
10061-02-6	trans-1,3-Dichloropropene	13		U
79-00-5	1,1,2-trichloroethane	13		U
75-25-2	Bromoform	13		U
108-10-1	4-Methyl-2-pentanone	13		U
591-78-6	2-Hexanone	13		U
79-34-5	1,1,2,2-Tetrachloroethane	13		U
127-18-4	Tetrachloroethane	13		U
108-88-3	Toluene	13		U
108-90-7	Chlorobenzene	13	2	J
100-41-4	Ethylbenzene	13		U
100-42-6	Styrene	13	17	U
1330-20-7	Xylenes, Total	13	10	U
110-75-8	2-Chloroethylvinylether	13		J
95-50-1	1,2-Dichlorobenzene	13		U
541-73-1	1,3-Dichlorobenzene	13		U
106-46-7	1,4-Dichlorobenzene	13		U



NYS DOH 10142

NJOEP 73015

CTDOHS PH-0554

EPA NY049

PA 66-378

LA NY049

315 Fullerton Avenue
Newburgh, NY 12550
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VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S011DL
 STL Lab No.: 201675-01DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 79.8
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: med
 Soil Extract Volume: 10000 ul

Date Collected: 4/19/99
 Date Received: 4/20/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/27/99
 Column: DB-624
 Lab File ID: V3669.D
 Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1600.0	U
74-83-9	Bromomethane	1600.0	U
75-01-4	Vinyl Chloride	1600.0	U
75-00-3	Chloroethane	1600.0	U
75-09-2	Methylene Chloride	1600.0	U
67-64-1	Acetone	1600.0	980.0 J D B
73-15-0	Carbon Disulfide	1600.0	U
75-35-4	1,1-Dichloroethene	1600.0	U
75-34-3	1,1-Dichloroethane	1600.0	U
540-59-0	1,2-Dichloroethene, Total	1600.0	190.0 J D
67-66-3	Chloroform	1600.0	U
107-06-2	1,2-Dichloroethane	1600.0	U
78-93-3	2-Butanone	1600.0	1400.0 J D B
71-55-6	1,1,1-Trichloroethane	1600.0	U
56-23-5	Carbon Tetrachloride	1600.0	U
108-05-4	Vinyl Acetate	1600.0	U
75-27-1	Bromodichloromethane	1600.0	U
78-87-5	1,2-Dichloropropane	1600.0	U
10061-01-5	cis-1,3-Dichloropropene	1600.0	U
79-01-6	Trichloroethene	1600.0	1500.0 J D
71-42-2	Benzene	1600.0	U
124-48-1	Dibromochloromethane	1600.0	U
10061-02-6	trans-1,3-Dichloropropene	1600.0	U
79-00-5	1,1,2-Trichloroethane	1600.0	U
75-24-2	Bromoform	1600.0	U
108-10-1	4-Methyl-2-Pentanone	1600.0	U
591-78-6	2-Hexanone	1600.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1600.0	U
127-18-4	Tetrachloroethene	1600.0	U
108-88-3	Toluene	1600.0	U
108-90-7	Chlorobenzene	1600.0	U
100-41-4	Ethylbenzene	1600.0	U
100-42-5	Styrene	1600.0	U
1330-20-7	Xylenes, Total	1600.0	U
110-75-8	2-Chloroethylvinyl ether	1600.0	U
95-50-1	1,2-Dichlorobenzene	1600.0	U
531-73-1	1,3-Dichlorobenzene	1600.0	U
106-46-7	1,4-Dichlorobenzene	1600.0	U

FORM I - VOA



NYSDOH 10142

NYDEP 73015

CTDOH'S PH-0554

EPA NY049

PA 66-378

LA NY040

315 Fullerton Avenue
 Newburgh, NY 12550
 Tel: (914) 562-0890
 Fax: (914) 562-0841

Volatile Organics Analysis Data Sheet
Form 1 Voa
82608(PP)

Client ID: PCTP-S012
STL Sample Number: 201675-02
Client Name: Duke Engineering
Project Name: TM8097
% Solids: 82.2
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted:
Date Analyzed: 22-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0609.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	27	U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
57-64-1	Acetone	12	33	U
75-15-0	Carbon disulfide	12	2	U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	150	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	110	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	2	J
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	62	U
100-42-5	Styrene	12	25	U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



NYSDOH 10142

NUDEP 73015

CTDOHS PH-0554

EPA NY048

PA 68-378

M-NY049

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Newburgh, NY 12550
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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B (PP)

Client ID: PCTP-S013
STL Sample Number: 201675-03
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 80.7
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19 APR-99
Date Received: 20 APR-99
Date Extracted:
Date Analyzed: 22 APR-99
Report Date: 27 APR-99
Column: DB-624
Lab File Id: W0610.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	19	U
75-00-3	Chloroethane	12		U
76-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	8	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12	3	J
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	230	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	570	E
71-43-2	Benzene	12	2	J
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	1	J
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	1	J
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinyl ether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S013DL
 STL Lab No.: 201675-03DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 80.7
 Matrix: Soil
 Sample Wt/Vol.: 1 g
 Level: low
 Soil Extract Volume: ul

Date Collected: 4/19/99
 Date Received: 4/20/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/27/99
 Column: DB-624
 Lab File ID: W0620.D
 Dilution Factor: 5
 Soil Aliquot Volume: nl

4/27/99

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	62.0	U
74-83-9	Bromomethane	62.0	U
75-01-4	Vinyl Chloride	62.0	U
75-00-3	Chloroethane	62.0	29.0 I B
75-09-2	Methylene Chloride	62.0	U
67-64-1	Acetone	62.0	U
75-15-0	Carbon Disulfide	62.0	18.0 J D
75-35-4	1,1-Dichloroethene	62.0	U
75-34-3	1,1-Dichloroethane	62.0	U
540-59-0	1,2-Dichloroethene, Total	62.0	U
67-66-3	Chloroform	62.0	350.0 D
107-06-2	1,2-Dichloroethane	62.0	U
78-93-3	2-Butanone	62.0	U
71-55-6	1,1,1-Trichloroethane	62.0	U
50-23-5	Carbon Tetrachloride	62.0	U
108-05-4	Vinyl Acetate	62.0	U
75-27-4	Bromodichloromethane	62.0	U
78-87-5	1,2-Dichloropropane	62.0	U
10061-01-5	cis-1,2-Dichloropropene	62.0	U
79-01-6	Trichloroethene	62.0	U
71-43-2	Benzene	62.0	690.0 D
124-48-1	Dibromochloromethane	62.0	U
10061-02-6	trans-1,3-Dichloropropane	62.0	U
79-00-5	1,1,2-Trichloroethane	62.0	U
75-25-2	Bromoform	62.0	U
108-10-1	4-Methyl-2-Pentanone	62.0	U
591-78-6	2-Hexanone	62.0	U
79-34-5	1,1,2,2-Tetrachloroethane	62.0	U
127-18-4	Tetrachloroethene	62.0	U
108-88-3	Toluene	62.0	U
108-90-7	Chlorobenzene	62.0	U
100-41-4	Ethylbenzene	62.0	U
100-42-5	Styrene	62.0	U
1330-20-7	Xylenes, Total	62.0	U
110-75-8	2-Chloroethylvinyl ether	62.0	U
95-50-1	1,2-Dichlorobenzene	62.0	U
541-75-1	1,3-Dichlorobenzene	62.0	U
106-46-7	1,4-Dichlorobenzene	62.0	U

FORM I - VOA



NYSDOH 10142

NUOEP 73015

CTDOHS PH-0554

EPA NYC49

PA 88-378

M-NY049

315 Fullerton Avenue
 Newburgh, NY 12550
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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B (PP)

Client ID: PCTP-S014
STL Sample Number: 201675-04
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 80.1
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19 APR-99
Date Received: 20 APR-99
Date Extracted:
Date Analyzed: 22 APR-99
Report Date: 27 APR-99
Column: DB 624
Lab File Id: W0611.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	16	U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	16	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12	2	J
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	340	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	680	U
71-43-2	Benzene	12	2	J
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12	2	J
591-79-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	4	J
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
106-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12	6	J
110-76-8	2-Chloroethylvinyl ether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S014DL
 STL Lab No.: 201675-04DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 80.1
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: mcd
 Soil Extract Volume: 10000 ul

Date Collected: 4/19/99
 Date Received: 4/20/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/27/99
 Column: DB-624
 Lab File ID: V3670.D
 Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1600.0	U
74-83-9	Bromomethane	1600.0	U
75-01-4	Vinyl Chloride	1600.0	U
75-00-3	Chloroethane	1600.0	U
75-09-2	Methylene Chloride	1600.0	U
67-64-1	Acetone	1600.0	920.0 J D B
75-13-0	Carbon Disulfide	1600.0	U
75-35-4	1,1-Dichloroethene	1600.0	U
75-34-3	1,1-Dichloroethane	1600.0	U
540-59-0	1,2-Dichloroethene, Total	1600.0	420.0 J D
67-66-3	Chloroform	1600.0	U
107-06-2	1,2-Dichloroethane	1600.0	U
78-93-3	2-Butanone	1600.0	1400.0 J D B
71-55-6	1,1,1-Trichloroethane	1600.0	U
56-23-5	Carbon Tetrachloride	1600.0	U
108-05-4	Vinyl Acetate	1600.0	U
75-27-4	Bromodichloromethane	1600.0	U
78-87-5	1,2-Dichloropropane	1600.0	U
10061-01-3	cis-1,3-Dichloropropene	1600.0	U
79-01-6	Trichloroethene	1600.0	3300.0 D
71-43-2	Benzene	1600.0	U
124-48-1	Dibromochloromethane	1600.0	U
10061-02-6	trans-1,3-Dichloropropene	1600.0	U
79-00-5	1,1,2-Trichloroethane	1600.0	U
75-25-2	Bromoform	1600.0	U
108-10-1	4-Methyl-2-Pentanone	1600.0	U
591-78-6	2-Hexanone	1600.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1600.0	U
127-18-4	Tetrachloroethene	1600.0	U
108-88-3	Toluene	1600.0	U
108-90-7	Chlorobenzene	1600.0	U
100-41-4	Ethylbenzene	1600.0	U
100-42-5	Styrene	1600.0	U
1330-20-7	Xylenes, Total	1600.0	U
110-75-8	2-Chloroethylvinyl ether	1600.0	U
95-50-1	1,2-Dichlorobenzene	1600.0	U
541-73-1	1,3-Dichlorobenzene	1600.0	U
106-46-7	1,4-Dichlorobenzene	1600.0	U

FORM I - VOA



NYSDOH 10142

NYDEP 73015

CTDOHS PH-0684

EPA NY049

PA 68-378

NY-NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S015
STL Sample Number: 201675-05
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 80.5
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted:
Date Analyzed: 22-APR-99
Report Date: 27-APR-99
Column: DB 624
Lab File Id: W0612.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	4	J
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	9	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	120	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	120	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S016
STL Sample Number: 201675-06
Client Name: Duke Engineering
Project Name: TM8097
X Solid: 80.7
Matrix: 3 Soil/Slidg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB 624
Lab File Id: W0627.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	3	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	19	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	52	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



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CTDOHS PH-0594

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PA 68-378

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S017
STL Sample Number: 201675-07
Client Name: Duke Engineering
Project Name: TM8097
X SoilId: 81.0
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19 APR-99
Date Received: 20 APR-99
Date Extracted:
Date Analyzed: 23 APR-99
Report Date: 27 APR-99
Column: DB-624
Lab File Id: W0622.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	4	J
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	10	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12	1	J
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	190	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	400	E
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethyl vinyl ether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S017DL
STL Lab No.: 201675-07DL
Client Name: Duke Engineering
Project Name: TM8097

% Solid: 81
Matrix: Soil
Sample Wt/Vol.: 1 g
Level: low
Soil Extract Volume: ul

Date Collected: 4/19/99
Date Received: 4/20/99
Date Extracted:
Date Analyzed: 4/26/99
Report Date: 4/27/99
Column: DB-624
Lab File ID: W0664.D
Dilution Factor: 5
Soil Aliquot Volume: ul

4/27/99

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	62.0	U
74-83-9	Bromomethane	62.0	U
75-01-4	Vinyl Chloride	62.0	U
75-00-3	Chloroethane	62.0	U
75-09-2	Methylene Chloride	62.0	U
67-64-1	Acetone	62.0	21.0 J D
75-15-0	Carbon Disulfide	62.0	U
75-35-4	1,1-Dichloroethene	62.0	U
75-34-3	1,1-Dichloroethane	62.0	U
540-59-0	1,2-Dichloroethene, Total	62.0	120.0 D
67-66-3	Chloroform	62.0	U
107-06-2	1,2-Dichloroethane	62.0	U
78-93-3	2-Butanone	62.0	U
71-55-6	1,1,1-Trichloroethane	62.0	U
56-23-5	Carbon Tetrachloride	62.0	U
108-05-4	Vinyl Acetate	62.0	U
75-27-4	Bromodichloromethane	62.0	U
78-87-5	1,2-Dichloropropane	62.0	U
10061-01-5	cis-1,3-Dichloropropene	62.0	U
79-01-6	Trichloroethene	62.0	520.0 D
71-43-2	Benzene	62.0	U
124-48-1	Dibromochloromethane	62.0	U
10061-02-6	trans-1,3-Dichloropropene	62.0	U
79-00-5	1,1,2-Trichloroethane	62.0	U
78-25-2	Bromoform	62.0	U
108-10-1	4-Methyl-2-Pentanone	62.0	U
591-79-6	2-Hexanone	62.0	U
79-34-5	1,1,2,2-Tetrachloroethane	62.0	U
127-18-4	Tetrachloroethene	62.0	U
108-88-3	Toluene	62.0	U
108-90-7	Chlorobenzene	62.0	U
100-41-4	Ethylbenzene	62.0	U
100-42-5	Styrene	62.0	U
1330-20-7	Xylenes, Total	62.0	U
110-75-8	2-Chloroethyl vinyl ether	62.0	U
95-50-1	1,2-Dichlorobenzene	62.0	U
541-73-1	1,3-Dichlorobenzene	62.0	U
106-46-7	1,4-Dichlorobenzene	62.0	U

FORM I - VOA



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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S018
STL Sample Number: 201736-01
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 90.5
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19 APR-99
Date Received: 21 APR-99
Date Extracted:
Date Analyzed: 23 APR-99
Report Date: 28 APR-99
Column: DB 624
Lab File Id: W0630.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	11		U
74-83-9	Bromomethane	11		U
75-01-4	Vinyl chloride	11	3	J
75-00-3	Chloroethane	11		U
75-09-2	Methylene chloride	11		U
67-64-1	Acetone	11	5	J
75-15-0	Carbon disulfide	11		U
75-35-4	1,1-Dichloroethene	11		U
75-34-3	1,1-Dichloroethane	11		U
540-59-0	1,2-Dichloroethene(total)	11	140	U
67-66-3	Chloroform	11		U
107-06-2	1,2-Dichloroethane	11		U
78-93-3	2-Butanone	11	140	J
71-55-6	1,1,1-Trichloroethane	11		U
56-23-5	Carbon tetrachloride	11		U
108-05-4	Vinyl acetate	11		U
75-27-4	Bromodichloromethane	11		U
78-87-5	1,2-Dichloropropane	11		U
10061-01-5	cis-1,3-Dichloropropene	11		U
79-01-6	Trichloroethene	11	150	U
71-43-2	Benzene	11		U
124-48-1	Dibromochloromethane	11		U
10061-02-6	trans-1,3-Dichloropropene	11		U
79-00-5	1,1,2-trichloroethane	11		U
75-25-2	Bromoform	11		U
108-10-1	4-Methyl-2-pentanone	11		U
591-78-6	2-Hexanone	11		U
79-34-5	1,1,2,2-Tetrachloroethane	11		U
127-18-4	Tetrachloroethene	11		U
108-88-3	Toluene	11		U
108-90-7	Chlorobenzene	11		U
100-41-4	Ethylbenzene	11		U
100-42-5	Styrene	11		U
1330-20-7	Xylenes, Total	11		U
110-75-8	2-Chloroethylvinylether	11		U
95-50-1	1,2-Dichlorobenzene	11		U
541-73-1	1,3-Dichlorobenzene	11		U
106-46-7	1,4-Dichlorobenzene	11		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
82608(PP)

Client ID: PCTP-S019
STL Sample Number: 201675-08
Client Name: Duke Engineering
Project Name: TM8097
x Solid: 80.6
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 20-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0523.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12	8	U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12		U
75-15-0	Carbon disulfide	12	9	J
75-35-4	1,1-Dichloroethene	12	3	J
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	650	E
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	1300	E
71-43-2	Benzene	12	4	J
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



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CTDOHS PH-0554

EPA NY049

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NY-NY049

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VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S019DL
STL Lab No.: 201675-08DL
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 80.6
Matrix: Soil
Sample Wt/Vol.: 1 g
Level: low
Soil Extract Volume: ul

Date Collected: 4/19/99
Date Received: 4/20/99
Date Extracted:
Date Analyzed: 4/24/99
Report Date: 4/27/99
Column: DB-624
Lab File ID: W0651.D
Dilution Factor: 5
Soil Aliquot Volume: ul

4/27/99

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-1	Chloromethane	62.0	U
74-83-9	Bromomethane	62.0	U
75-01-4	Vinyl Chloride	62.0	U
75-00-3	Chloroethane	62.0	U
75-09-2	Methylene Chloride	62.0	U
67-64-1	Acetone	62.0	U
73-15-0	Carbon Disulfide	62.0	18.0 J D
75-35-4	1,1-Dichloroethene	62.0	U
75-34-3	1,1-Dichloroethane	62.0	U
540-59-0	1,2-Dichloroethene, Total	62.0	U
67-66-3	Chloroform	62.0	490.0 D
107-06-2	1,2-Dichloroethane	62.0	U
78-93-3	2-Butanone	62.0	U
71-55-6	1,1,1-Trichloroethane	62.0	U
56-23-5	Carbon Tetrachloride	62.0	U
108-05-4	Vinyl Acetate	62.0	U
75-27-4	Bromochloromethane	62.0	U
78-87-5	1,2-Dichloropropane	62.0	U
10061-01-5	cis-1,3-Dichloropropene	62.0	U
79-01-6	Trichloroethene	62.0	U
71-43-2	Benzene	62.0	950.0 D
124-48-1	Dibromochloromethane	62.0	U
10061-02-6	trans-1,3-Dichloropropene	62.0	U
79-00-5	1,1,2-Trichloroethane	62.0	U
75-25-2	Bromoform	62.0	U
108-10-1	4-Methyl-2-Pentanone	62.0	U
591-78-6	2-Hexanone	62.0	U
79-34-5	1,1,2,2-Tetrachloroethane	62.0	U
127-18-4	Tetrachloroethene	62.0	U
108-88-3	Toluene	62.0	U
108-90-2	Chlorobenzene	62.0	U
100-41-4	Ethylbenzene	62.0	U
100-42-5	Styrene	62.0	U
1330-20-7	Xylenes, Total	62.0	U
110-73-8	2-Chloroethylvinyl ether	62.0	U
95-50-1	1,2-Dichlorobenzene	62.0	U
541-73-1	1,3-Dichlorobenzene	62.0	U
106-46-7	1,4-Dichlorobenzene	62.0	U

FORM I - VOA



NYSOEH 10142

NUOEP 73015

CTDOHS PH-0564

EPA NY049

PA 58-378

NYNY049

315 Fullerton Avenue
Newburgh, NY 12550
Tel: (914) 562-0890
Fax: (914) 562-0841

Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S020
STL Sample Number: 201675-09
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.7
Matrix: 3 Soil/Slag
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19 APR-99
Date Received: 20 APR-99
Date Extracted:
Date Analyzed: 23 APR-99
Report Date: 27 APR-99
Column: DB 624
Lab File Id: W0624.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12	10	U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12		U
75-15-0	Carbon disulfide	12	4	J
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12	2	J
540-59-0	1,2-Dichloroethene (total)	12		U
67-66-3	Chloroform	12	430	E
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	290	E
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10067-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethyl vinyl ether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



NYSDOH 10142

NUDEP 73015

CTDOHS PH-0554

EPA NY048

PA 55-378

M-NY049

315 Fullerton Avenue
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VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S020DL
 STL Lab No.: 201675-09DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 81.7
 Matrix: Soil
 Sample Wt/Vol.: 1 g
 Level: low
 Soil Extract Volume: ul

Date Collected: 4/19/99
 Date Received: 4/20/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/27/99
 Column: DB-624
 Lab File ID: W0629.D
 Dilution Factor: 5
 Soil Aliquot Volume: ul

4/27/99

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	61.0	U
74-83-9	Bromomethane	61.0	U
75-01-4	Vinyl Chloride	61.0	U
75-00-3	Chloroethane	61.0	U
75-09-1	Methylene Chloride	61.0	U
67-64-1	Acetone	61.0	12.0 J D
75-15-0	Carbon Disulfide	61.0	U
75-35-4	1,1-Dichloroethene	61.0	U
75-34-3	1,1-Dichloroethane	61.0	U
540-59-0	1,2-Dichloroethene, Total	61.0	410.0 D
67-66-3	Chloroform	61.0	U
107-06-2	1,2-Dichloroethane	61.0	U
78-93-3	2-Hexanone	61.0	10.0 J D
71-55-6	1,1,1-Trichloroethane	61.0	U
56-23-5	Carbon Tetrachloride	61.0	U
108-05-4	Vinyl Acetate	61.0	U
74-27-1	Bromodichloromethane	61.0	U
78-87-5	1,2-Dichloropropane	61.0	U
10061-01-5	cis-1,3-Dichloropropene	61.0	U
79-01-6	Trichloroethene	61.0	310.0 D
71-43-2	Benzene	61.0	U
124-48-1	Dibromochloromethane	61.0	U
10061-02-6	trans-1,3-Dichloropropene	61.0	U
79-00-5	1,1,2-Trichloroethane	61.0	U
75-25-2	Bromoform	61.0	U
108-10-1	4-Methyl-2-Pentanone	61.0	U
991-78-6	2-Hexanone	61.0	U
79-34-5	1,1,2,2-Tetrachloroethane	61.0	U
127-18-4	Tetrachloroethene	61.0	U
108-88-3	Toluene	61.0	U
108-90-7	Chlorobenzene	61.0	U
100-41-4	Ethylbenzene	61.0	U
100-42-5	Styrene	61.0	U
1330-20-7	Xylenes, Total	61.0	U
110-75-8	2-Chloroethylvinyl ether	61.0	U
95-50-1	1,2-Dichlorobenzene	61.0	U
541-73-1	1,3-Dichlorobenzene	61.0	U
106-46-7	1,4-Dichlorobenzene	61.0	U

FORM I - VOA



NYSOCH 10142

NJDEP 73015

CTDOHS PH-0664

EPA NY049

PA 68-375

M-NY049

315 Fulton Avenue
 Newburgh, NY 12550
 Tel: (914) 562-0890
 Fax: (914) 562-0841

Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(P)

Client ID: PCTP-S021
STL Sample Number: 201736-02
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.6
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0631.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12	9	U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12		U
75-15-0	Carbon disulfide	12	12	U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12	2	U
540-59-0	1,2-Dichloroethene (total)	12		U
67-66-3	Chloroform	12	850	U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-6	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	160	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	13	U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	67	U
100-42-5	Styrene	12	70	U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S021DL
STL Lab No.: 201736-02DL
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.6
Matrix: Soil
Sample Wt/Vol.: 4 g
Level: med
Soil Extract Volume: 10000 ul

Date Collected: 4/19/99
Date Received: 4/21/99
Date Extracted:
Date Analyzed: 4/24/99
Report Date: 4/28/99
Column: DB-624
Lab File ID: V3686.D
Dilution Factor: 1
Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1500.0	U
74-83-9	Bromomethane	1500.0	U
75-01-4	Vinyl Chloride	1500.0	U
75-00-3	Chloroethane	1500.0	U
75-09-2	Methylene Chloride	1500.0	U
67-64-1	Acetone	1500.0	1100.0 J D
75-15-0	Carbon Disulfide	1500.0	U
75-35-4	1,1-Dichloroethene	1500.0	U
75-34-3	1,1-Dichloroethane	1500.0	U
540-59-0	1,2-Dichloroethene, Total	1500.0	1400.0 J D
67-66-3	Chloroform	1500.0	U
107-06-2	1,2-Dichloroethane	1500.0	U
78-91-3	2-Butanone	1500.0	1500.0 J D
71-55-6	1,1,1-Trichloroethane	1500.0	U
56-23-5	Carbon Tetrachloride	1500.0	U
108-05-4	Vinyl Acetate	1500.0	U
75-27-1	Bromodichloromethane	1500.0	U
78-87-5	1,2-Dichloropropane	1500.0	U
10061-01-5	cis-1,3-Dichloropropene	1500.0	U
79-01-6	Trichloroethene	1500.0	430.0 J D
71-43-2	Benzene	1500.0	U
124-48-1	Dibromochloromethane	1500.0	U
10061-02-0	trans-1,3-Dichloropropene	1500.0	U
79-00-5	1,1,2-Trichloroethane	1500.0	U
75-28-2	Bromoform	1500.0	U
108-10-1	4-Methyl-2-Pentanone	1500.0	U
591-78-6	2-Hexanone	1500.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1500.0	U
127-18-4	Tetrachloroethene	1500.0	U
108-88-3	Toluene	1500.0	U
108-90-7	Chlorobenzene	1500.0	U
100-41-4	Ethylbenzene	1500.0	270.0 J D
100-12-5	Styrene	1500.0	U
1330-20-7	Xylenes, Total	1500.0	260.0 J D
110-75-8	2-Chloroethylvinyl ether	1500.0	U
95-50-1	1,2-Dichlorobenzene	1500.0	U
541-73-1	1,3-Dichlorobenzene	1500.0	U
106-46-7	1,4-Dichlorobenzene	1500.0	U

FORM I - VOA



NYSDOH 10142

NUDEP 73015

CTDOHS FH-0554

EPA NY049

PA 68-178

MA-NY049

315 Fullerton Avenue
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Volatile Organics Analysis Data Sheet
Form 1 Voa
B2608 (PP)

Client ID: PCTP-S022
STL Sample Number: 201736-07
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 82.4
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0535.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	15	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	94	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	480	E
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	6	J
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	5	J
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12	14	U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



NYSDOH 10142

NIDEP 73015

CTDOHS PH-0534

EPA NY049

PA 88-176

M-NY049

315 Fullerton Avenue
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VOLATILE ORGANICS ANALYSIS DATA SHEET

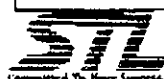
Client ID: PCTP-S022DL
 STI Lab No.: 201736-07DL
 Client Name: Duke Engineering
 Project Name: TM8097

% Solid: 82.4
 Matrix: Soil
 Sample Wt/Vol.: 1 g
 Level: low
 Soil Extract Volume: 1 ul

Date Collected 4/19/99
 Date Received 4/21/99
 Date Extracted
 Date Analyzed 4/26/99
 Report Date 4/28/99
 Column DB-624
 Lab File ID W0660.D
 Dilution Factor 5
 Soil Aliquot Volume 1 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	61.0	U
74-83-9	Bromomethane	61.0	U
75-01-4	Vinyl Chloride	61.0	U
75-00-3	Chloroethane	61.0	U
75-09-2	Methylene Chloride	61.0	U
67-64-1	Acetone	61.0	27.0 J D
73-15-0	Carbon Disulfide	61.0	U
75-35-4	1,1-Dichloroethene	61.0	U
75-34-3	1,1-Dichloroethane	61.0	U
540-59-0	1,2-Dichloroethene, Total	61.0	35.0 J D
67-66-3	Chloroform	61.0	U
107-06-2	1,2-Dichloroethane	61.0	U
78-93-3	2-Butanone	61.0	U
71-55-6	1,1,1-Trichloroethane	61.0	U
56-23-5	Carbon Tetrachloride	61.0	U
108-05-4	Vinyl Acetate	61.0	U
75-27-4	Bromodichloromethane	61.0	U
78-87-5	1,2-Dichloropropane	61.0	U
10061-01-3	cis-1,3-Dichloropropene	61.0	U
79-01-6	Trichloroethene	61.0	260.0 D
71-43-2	Benzene	61.0	U
124-48-1	Dibromochloromethane	61.0	U
10061-02-6	trans-1,3-Dichloropropene	61.0	U
79-00-5	1,1,2-Trichloroethane	61.0	U
78-15-2	Bromoform	61.0	U
108-10-1	4-Methyl-2-Pentanone	61.0	U
591-78-6	2-Hexanone	61.0	U
79-34-5	1,1,2,2-Tetrachloroethane	61.0	U
127-18-4	Tetrachloroethene	61.0	U
108-88-3	Toluene	61.0	U
106-90-7	Chlorobenzene	61.0	U
100-41-4	Ethylbenzene	61.0	6.0 J D
100-42-5	Styrene	61.0	U
1330-20-7	Xylenes, Total	61.0	11.0 J D
110-75-8	2-Chloroethylvinyl ether	61.0	U
95-50-1	1,2-Dichlorobenzene	61.0	U
841-77-1	1,3-Dichlorobenzene	61.0	U
106-46-7	1,4-Dichlorobenzene	61.0	U

FORM I - VOA



NYSDOH 10142

NIEP 70015

CTDOHS PH-0554

EPA NY049

PA 68-378

M-NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S023
STL Sample Number: 201736-03
Client Name: Duke Engineering
Project Name: TM8097
X Solid: 82.0
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0632.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12		U
75-15-0	Carbon disulfide	12	11	J
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12		U
67-66-3	Chloroform	12	450	E
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12		U
71-43-2	Benzene	12	400	E
124-48-1	Dibromochloromethane	12		U
10061-02-5	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12	19	U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12	42	U
1330-20-7	Xylenes, Total	12	61	U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



NYSDOH 10142

NYDEP 70015

CTDOHS PH-0554

EPA NY048

PA 68-378

MA NY048

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VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S023DL
STL Lab No.: 201736-03DL
Client Name: Duke Engineering
Project Name: TM8097

% Solid: 82
Matrix: Soil

Sample Wt/Vol.: 1 g

Level: low

Soil Extract Volume: ul

Date Collected: 4/19/99

Date Received: 4/21/99

Date Extracted:

Date Analyzed: 4/26/99

Report Date: 4/28/99

Column: DB-624

Lab File ID: W0658.D

Dilution Factor: 5

Soil Aliquot Volume: ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	61.0	U
74-83-9	Bromomethane	61.0	U
75-01-4	Vinyl Chloride	61.0	U
75-00-3	Chloroethane	61.0	U
75-09-2	Methylene Chloride	61.0	U
67-64-1	Acetone	61.0	22.0 J D
75-15-0	Carbon Disulfide	61.0	U
75-35-4	1,1-Dichloroethene	61.0	U
75-34-3	1,1-Dichloroethane	61.0	U
540-59-0	1,2-Dichloroethene, Total	61.0	260.0 D
67-66-3	Chloroform	61.0	U
107-06-2	1,2-Dichloroethane	61.0	U
78-93-3	2-Butanone	61.0	U
71-55-6	1,1,1-Trichloroethane	61.0	U
56-23-5	Carbon Tetrachloride	61.0	U
108-05-4	Vinyl Acetate	61.0	U
75-27-4	Bromodichloromethane	61.0	U
78-87-5	1,2-Dichloropropane	61.0	U
10061-01-5	cis-1,3-Dichloropropene	61.0	U
79-01-6	Trichloroethene	61.0	280.0 D
71-43-2	Benzene	61.0	U
124-48-1	Dibromochloromethane	61.0	U
10061-02-6	trans-1,3-Dichloropropene	61.0	U
79-00-5	1,1,2-Trichloroethane	61.0	U
75-25-2	Bromoform	61.0	U
108-10-1	4-Methyl-2-Pentanone	61.0	U
591-78-6	2-Hexanone	61.0	U
79-34-5	1,1,2,2-Tetrachloroethane	61.0	U
127-18-4	Tetrachloroethene	61.0	U
108-88-3	Toluene	61.0	16.0 J D
108-90-7	Chlorobenzene	61.0	U
100-41-4	Ethylbenzene	61.0	38.0 J D
100-42-5	Styrene	61.0	U
1330-20-7	Xylenes, Total	61.0	58.0 J D
110-75-8	2-Chloroethylvinyl ether	61.0	U
95-50-1	1,2-Dichlorobenzene	61.0	U
541-73-1	1,3-Dichlorobenzene	61.0	U
106-46-7	1,4-Dichlorobenzene	61.0	U

FORM I - VOA



NYSOCH 10142

NJDEP 73015

CTDOHS PH-0554

EPA NY049

PA 66-378

MA NY040

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Volatile Organics Analysis Data Sheet
Form 1 Voa
82608(PP)

Client ID: PCTP-S024
STL Sample Number: 201736-04
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 82.7
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 19-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0633.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	16	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	130	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	200	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	25	U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	14	U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12	60	U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



NYSOEH 10142

NIDEP 73015

CTDOHS PH-0554

FPA NY048

PA 6H-378

N NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B (PP)

Client ID: PCTP-5025	Date Collected: 19 APR-99
STL Sample Number: 201736-06	Date Received: 21 APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 23 APR-99
% Solid: 82.4	Report Date: 28 APR-99
Matrix: 3 Soil/Sldg	Column: DB 624
Sample Wt/Vol: 5g	Lab File Id: W0634.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	20	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene (total)	12	18	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	3	U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	370	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S025DL
 STL Lab No.: 201736-06DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 82.4
 Matrix: Soil
 Sample Wt/Vol.: 1 g
 Level: low
 Soil Extract Volume: ul

Date Collected: 4/19/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/26/99
 Report Date: 4/28/99
 Column: DB-624
 Lab File ID: W0669.D
 Dilution Factor: 5
 Soil Aliquot Volume: ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	61.0	U
74-83-9	Bromomethane	61.0	U
75-01-4	Vinyl Chloride	61.0	U
75-00-3	Chloroethane	61.0	U
75-09-3	Methylene Chloride	61.0	U
67-64-1	Acetone	61.0	16.0 J D
75-15-0	Carbon Disulfide	61.0	U
75-35-4	1,1-Dichloroethene	61.0	U
75-34-3	1,1-Dichloroethane	61.0	U
540-59-0	1,2-Dichloroethene, Total	61.0	18.0 J D
67-66-3	Chloroform	61.0	U
107-06-2	1,2-Dichloroethane	61.0	U
78-93-3	2-Butanone	61.0	U
71-55-6	1,1,1-Trichloroethane	61.0	U
50-23-5	Carbon Tetrachloride	61.0	U
108-05-4	Vinyl Acetate	61.0	U
75-27-4	Bromodichloromethane	61.0	U
78-87-5	1,2-Dichloropropane	61.0	U
10061-01-5	cis-1,3-Dichloropropene	61.0	U
79-01-6	Trichloroethene	61.0	360.0 D
71-43-2	Benzene	61.0	U
124-48-1	Dibromochloromethane	61.0	U
10061-02-6	trans-1,3-Dichloropropene	61.0	U
79-00-5	1,1,2-Trichloroethane	61.0	U
75-25-2	Bromoform	61.0	U
108-10-1	4-Methyl-2-Pentanone	61.0	U
591-78-6	2-Hexanone	61.0	U
79-34-5	1,1,2,2-Tetrachloroethane	61.0	U
127-18-4	Tetrachloroethene	61.0	U
108-88-3	Toluene	61.0	U
108-90-7	Chlorobenzene	61.0	U
100-41-4	Ethylbenzene	61.0	U
100-42-5	Styrene	61.0	U
1330-20-7	Xylenes, Total	61.0	U
110-75-8	2-Chloroethylvinyl ether	61.0	U
95-50-1	1,2-Dichlorobenzene	61.0	U
141-73-1	1,3-Dichlorobenzene	61.0	U
106-46-7	1,4-Dichlorobenzene	61.0	U

FORM I - VOA



NYSOCH 10142

NIDEP 73015

C110XHS PH-0554

EPA NY049

PA 68-378

LN-NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S026
STL Sample Number: 201736-12
Client Name: Duke Engineering
Project Name: TM8097
X Solid: 82.0
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 26-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0667.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	11	J
67-64-1	Acetone	12		U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12	140	U
540-59-0	1,2-Dichloroethene(total)	12	1	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12	78	U
79-01-6	Trichloroethene	12		U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12	4	J
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12	9	J
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12	13	U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12	46	U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethyl vinyl ether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B (PP)

Client ID: PCTP-S027
STL Sample Number: 201736-10
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 84.5
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0636.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	4	J
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	8	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12	1	J
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	480	E
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	680	E
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	6	J
108-90-7	Chlorobenzene	12	10	J
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12	7	J
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S027DL
 STL Lab No.: 201736-10DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 84.5
 Matrix: Soil
 Sample Wt/Vol.: 1 g
 Level: low
 Soil Extract Volume: - ul

Date Collected: 4/20/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/26/99
 Report Date: 4/28/99
 Column: DB-624
 Lab File ID: W0662.D
 Dilution Factor: 5
 Soil Aliquot Volume: - ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	59.0	U
74-83-9	Bromomethane	59.0	U
75-01-4	Vinyl Chloride	59.0	U
75-00-3	Chloroethane	59.0	U
75-09-2	Methylene Chloride	59.0	U
67-64-1	Acetone	59.0	19.0 J D
74-15-0	Carbon Disulfide	59.0	U
75-35-4	1,1-Dichloroethene	59.0	U
75-36-3	1,1-Dichloroethane	59.0	U
540-59-0	1,2-Dichloroethene, Total	59.0	250.0 D
67-66-3	Chloroform	59.0	U
107-06-2	1,2-Dichloroethane	59.0	U
78-73-3	2-Butanone	59.0	U
71-55-6	1,1,1-Trichloroethane	59.0	U
56-23-5	Carbon Tetrachloride	59.0	U
108-05-4	Vinyl Acetate	59.0	U
75-27-4	Bromodichloromethane	59.0	U
78-87-5	1,2-Dichloropropane	59.0	U
10061-01-5	cis-1,3-Dichloropropene	59.0	U
79-01-6	Trichloroethene	59.0	590.0 D
71-43-2	Benzene	59.0	U
124-48-1	Dibromochloromethane	59.0	U
10061-02-6	trans-1,3-Dichloropropene	59.0	U
79-00-5	1,1,2-Trichloroethane	59.0	U
75-25-2	Bromoform	59.0	U
108-10-1	4-Methyl-2-Pentanone	59.0	U
591-78-6	2-Hexanone	59.0	U
79-34-5	1,1,2,2-Tetrachloroethane	59.0	U
127-18-4	Tetrachloroethene	59.0	U
108-88-3	Toluene	59.0	6.0 J D
108-90-7	Chlorobenzene	59.0	U
100-41-4	Ethylbenzene	59.0	10.0 J D
100-42-5	Styrene	59.0	U
1330-20-7	Xylenes, Total	59.0	7.0 J D
110-25-8	2-Chloroethylvinyl ether	59.0	U
95-50-1	1,2-Dichlorobenzene	59.0	U
541-73-1	1,3-Dichlorobenzene	59.0	U
106-46-7	1,4-Dichlorobenzene	59.0	U

FORM 1 - VOA



Committed To Your Future

NYS DEC 10142

NUDEP 73015

CITICORP PH-0554

EPA NY048

PA 88-378

M NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S028
STL Sample Number: 201736-09
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.3
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 1g
Level: LOW

Date Collected: 19-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: V3662.D
Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc ug/kg	Data Qualifier
74-87-3	Chloromethane	62		U
74-83-9	Bromomethane	62		U
75-01-4	Vinyl chloride	62	16	U
75-00-3	Chloroethane	62		U
75-09-2	Methylene chloride	62		U
67-64-1	Acetone	62	18	U
75-15-0	Carbon disulfide	62		U
75-35-4	1,1-Dichloroethene	62		U
75-34-3	1,1-Dichloroethane	62		U
540-59-0	1,2-Dichloroethene(total)	62	1600	E
67-66-3	Chloroform	62		U
107-06-2	1,2-Dichloroethane	62		U
78-93-3	2-Butanone	62		U
71-55-6	1,1,1-Trichloroethane	62		U
56-23-5	Carbon tetrachloride	62		U
108-05-4	Vinyl acetate	62		U
75-27-4	Bromodichloromethane	62		U
78-87-5	1,2-Dichloropropane	62		U
10061-01-5	cis-1,3-Dichloropropene	62		U
79-01-6	Trichloroethene	62	640	U
71-43-2	Benzene	62		U
124-48-1	Dibromochloromethane	62		U
10061-02-6	trans-1,3-Dichloropropene	62		U
79-00-5	1,1,2-trichloroethane	62		U
75-25-2	Bromoform	62		U
108-10-1	4-Methyl-2-pentanone	62		U
591-78-6	2-Hexanone	62		U
79-34-5	1,1,2,2-Tetrachloroethane	62		U
127-18-4	Tetrachloroethene	62		U
108-88-3	Toluene	62	130	U
108-90-7	Chlorobenzene	62		U
100-41-4	Ethylbenzene	62	83	U
100-42-5	Styrene	62		U
1330-20-7	Xylenes, Total	62	200	U
110-75-8	2-Chloroethylvinylether	62		U
95-50-1	1,2-Dichlorobenzene	62		U
541-73-1	1,3-Dichlorobenzene	62		U
106-46-7	1,4-Dichlorobenzene	62		U



NYSDOH 10142

NJDEP 73015

CTDOHS PH-0564

EPA NY049

PA 68-378

MI NY049

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VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S028DL
 STL Lab No.: 201736-09DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 81.3
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: med
 Soil Extract Volume: 10000 ul

Date Collected: 4/19/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/24/99
 Report Date: 4/28/99
 Column: DB-624
 Lab File ID: V3678.D
 Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-1	Chloromethane	1500.0	U
74-83-9	Bromomethane	1500.0	U
75-01-4	Vinyl Chloride	1500.0	U
75-00-3	Chloroethane	1500.0	U
75-09-2	Methylene Chloride	1500.0	U
67-64-1	Acetone	1500.0	1200.0 J D B
75-15-0	Carbon Disulfide	1500.0	U
75-15-4	1,1-Dichloroethene	1500.0	U
75-14-3	1,1-Dichloroethane	1500.0	U
540-59-0	1,2-Dichloroethene, Total	1500.0	1300.0 J D
67-66-3	Chloroform	1500.0	U
107-06-2	1,2-Dichloroethane	1500.0	U
78-93-3	2-Butanone	1500.0	1400.0 J D B
71-55-6	1,1,1-Trichloroethane	1500.0	U
50-23-5	Carbon Tetrachloride	1500.0	U
108-05-4	Vinyl Acetate	1500.0	U
75-27-4	Bromodichloromethane	1500.0	U
78-87-5	1,2-Dichloropropane	1500.0	U
10061-01-5	cis-1,3-Dichloropropene	1500.0	U
79-01-6	Trichloroethene	1500.0	650.0 J D
71-43-2	Benzene	1500.0	U
124-48-1	Dibromochloromethane	1500.0	U
10061-02-6	trans-1,3-Dichloropropene	1500.0	U
79-00-5	1,1,2-Trichloroethane	1500.0	U
75-25-2	Bromoform	1500.0	U
108-10-1	4-Methyl-2-Pentanone	1500.0	U
591-78-6	2-Hexanone	1500.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1500.0	U
127-18-4	Tetrachloroethene	1500.0	U
108-88-3	Toluene	1500.0	170.0 J D
108-90-7	Chlorobenzene	1500.0	U
100-41-4	Ethylbenzene	1500.0	180.0 J D
100-42-5	Styrene	1500.0	U
1330-20-7	Xylenes, Total	1500.0	370.0 J D
110-75-8	2-Chloroethylvinyl ether	1500.0	U
95-50-1	1,2-Dichlorobenzene	1500.0	U
541-73-1	1,3-Dichlorobenzene	1500.0	U
106-46-7	1,4-Dichlorobenzene	1500.0	U

FORM I - VOA



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S029
STL Sample Number: 201736-08
Client Name: Duke Engineering
Project Name: TH8097
% Solid: 81.6
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 2.5g
Level: LOW

Date Collected: 19 APR-99
Date Received: 21 APR-99
Date Extracted:
Date Analyzed: 26 APR-99
Report Date: 28 APR-99
Column: DB-624
Lab File Id: W0571.D
Dilution Factor: 2.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	25		U
74-83-9	Bromomethane	25		U
75-01-4	Vinyl chloride	25		U
75-00-3	Chloroethane	25		U
75-09-2	Methylene chloride	25		U
67-64-1	Acetone	25	50	U
75-15-0	Carbon disulfide	25		U
75-35-4	1,1-Dichloroethene	25		U
75-34-3	1,1-Dichloroethane	25		U
540-59-0	1,2-Dichloroethene(total)	25	700	E
67-66-3	Chloroform	25		U
107-06-2	1,2-Dichloroethane	25		U
78-93-3	2-Butanone	25		U
71-55-6	1,1,1-Trichloroethane	25		U
56-23-5	Carbon tetrachloride	25		U
108-05-4	Vinyl acetate	25		U
75-27-4	Bromodichloromethane	25		U
78-07-5	1,2-Dichloropropane	25		U
10061-01-5	cis-1,3-Dichloropropene	25		U
79-01-6	Trichloroethene	25	280	U
71-43-2	Benzene	25		U
124-48-1	Dibromochloromethane	25		U
10061-02-6	trans-1,3-Dichloropropene	25		U
79-00-5	1,1,2-trichloroethane	25		U
75-25-2	Bromoform	25		U
108-10-1	4-Methyl-2-pentanone	25	24	J
591-78-6	2-Hexanone	25		U
79-34-5	1,1,1,2-Tetrachloroethane	25		U
127-18-4	Tetrachloroethene	25		U
108-88-3	Toluene	25	57	U
108-90-7	Chlorobenzene	25		U
100-41-4	Ethylbenzene	25	95	U
100-42-5	Styrene	25		U
1330-20-7	Xylenes, Total	25	210	U
110-75-6	2-Chloroethylvinylether	25		U
95-50-1	1,2-Dichlorobenzene	25		U
541-73-1	1,3-Dichlorobenzene	25		U
106-46-7	1,4-Dichlorobenzene	25		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S029DL
 STL Lab No.: 201736-08DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 81.6
 Matrix: Soil
 Sample Wt/Vol.: 1 g
 Level: low
 Soil Extract Volume: ul

Date Collected: 4/19/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/28/99
 Column: DB-624
 Lab File ID: V3661.D
 Dilution Factor: 5
 Soil Aliquot Volume: ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	61.0	U
74-83-9	Bromomethane	61.0	U
75-01-4	Vinyl Chloride	61.0	U
75-00-3	Chloroethane	61.0	U
75-09-2	Methylene Chloride	61.0	U
67-64-1	Acetone	61.0	53.0 J D
75-15-0	Carbon Disulfide	61.0	U
75-35-4	1,1-Dichloroethene	61.0	U
75-34-3	1,1-Dichloroethane	61.0	U
540-59-0	1,2-Dichloroethene, Total	61.0	790.0 D
67-66-3	Chloroform	61.0	U
107-06-2	1,2-Dichloroethane	61.0	U
78-93-3	2-Butanone	61.0	19.0 J D
71-55-6	1,1,1-Trichloroethane	61.0	U
50-29-5	Carbon Tetrachloride	61.0	U
108-05-4	Vinyl Acetate	61.0	U
75-27-1	Bromodichloromethane	61.0	U
78-87-5	1,2-Dichloropropane	61.0	U
10061-01-5	cis-1,3-Dichloropropene	61.0	U
79-01-6	Trichloroethene	61.0	350.0 D
71-43-2	Benzene	61.0	U
124-48-1	Dibromochloromethane	61.0	U
10061-02-6	trans-1,3-Dichloropropene	61.0	U
79-00-5	1,1,2-Trichloroethane	61.0	U
75-25-2	Bromoform	61.0	U
108-10-1	4-Methyl-2-Pentanone	61.0	27.0 J D
591-78-6	2-Hexanone	61.0	U
79-34-5	1,1,2,2-Tetrachloroethane	61.0	U
127-18-4	Tetrachloroethene	61.0	U
108-88-3	Toluene	61.0	87.0 D
108-90-7	Chlorobenzene	61.0	U
100-41-4	Ethylbenzene	61.0	240.0 D
100-42-5	Styrene	61.0	U
1330-20-7	Xylenes, Total	61.0	710.0 D
110-75-8	2-Chloroethyl vinyl ether	61.0	U
95-50-1	1,2-Dichlorobenzene	61.0	U
541-73-1	1,3-Dichlorobenzene	61.0	U
106-46-7	1,4-Dichlorobenzene	61.0	U

FORM I - VOA



NYSDEC 10142

NJDEP 73015

CTDOH 141-0354

EPA NY040

PA 68 378

M-NY049

315 Fullerton Avenue
 Newburgh, NY 12550
 Tel: (914) 562-0890
 Fax: (914) 562-0841

Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S032
STL Sample Number: 201736-19
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 77.5
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0648.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	13		U
74-83-9	Bromomethane	13		U
75-01-4	Vinyl chloride	13	29	U
75-00-3	Chloroethane	13		U
75-09-2	Methylene chloride	13		U
67-64-1	Acetone	13	17	U
75-15-0	Carbon disulfide	13	1	J
75-35-4	1,1-Dichloroethene	13	7	J
75-34-3	1,1-Dichloroethane	13		U
540-59-0	1,2-Dichloroethene (total)	13	710	E
67-66-3	Chloroform	13		U
107-06-2	1,2-Dichloroethane	13		U
78-93-3	2-Butanone	13		U
71-55-6	1,1,1 Trichloroethane	13		U
56-23-5	Carbon tetrachloride	13		U
108-05-4	Vinyl acetate	13		U
75-27-4	Bromodichloromethane	13		U
78-87-5	1,2-Dichloropropane	13		U
10061-01-5	cis-1,3-Dichloropropene	13		U
79-01-6	Trichloroethene	13	1400	E
71-43-2	Benzene	13	4	J
124-48-1	Dibromochloromethane	13		U
10061-02-6	trans-1,3-Dichloropropene	13		U
79-00-5	1,1,2-trichloroethane	13		U
75-25-2	Bromoform	13		U
108-10-1	4-Methyl-2-pentanone	13		U
591-78-6	2-Hexanone	13		U
79-34-5	1,1,2,2-Tetrachloroethane	13		U
127-18-4	Tetrachloroethene	13		U
108-88-3	Toluene	13		U
108-90-7	Chlorobenzene	13		U
100-41-4	Ethylbenzene	13		U
100-42-5	Styrene	13		U
1330-20-7	Xylenes, Total	13		U
110-75-8	2-Chloroethyl vinyl ether	13		U
95-50-1	1,2-Dichlorobenzene	13		U
941-73-1	1,3-Dichlorobenzene	13		U
106-46-7	1,4-Dichlorobenzene	13		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S032DL
 STL Lab No.: 201736-19DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 77.5

Matrix: Soil
 Sample Wt/Vol.: 4 g

Level: med
 Soil Extract Volume: 10000 ul

Date Collected: 4/20/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/25/99
 Report Date: 4/28/99
 Column: DB-624
 Lab File ID: V3693.D

Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1600.0	U
74-83-9	Bromomethane	1600.0	U
75-01-4	Vinyl Chloride	1600.0	U
75-00-3	Chloroethane	1600.0	U
75-09-2	Methylene Chloride	1600.0	U
67-64-1	Acetone	1600.0	960.0 J D B
75-15-0	Carbon Disulfide	1600.0	U
75-35-4	1,1-Dichloroethene	1600.0	U
75-34-3	1,1-Dichloroethane	1600.0	580.0 J D
540-59-0	1,2-Dichloroethene, Total	1600.0	U
67-66-3	Chloroform	1600.0	U
107-06-2	1,2-Dichloroethane	1600.0	U
78-93-3	2-Butanone	1600.0	1400.0 J D B
71-55-6	1,1,1-Trichloroethane	1600.0	U
56-23-5	Carbon Tetrachloride	1600.0	U
108-05-4	Vinyl Acetate	1600.0	U
75-27-4	Bromodichloromethane	1600.0	U
78-87-5	1,2-Dichloropropane	1600.0	U
10061-01-5	cis-1,3-Dichloropropene	1600.0	U
79-01-6	Trichloroethene	1600.0	2600.0 D
71-43-2	Benzene	1600.0	U
124-48-1	Dibromochloromethane	1600.0	U
10061-02-6	trans-1,3-Dichloropropene	1600.0	U
79-00-5	1,1,2-Trichloroethane	1600.0	U
75-25-2	Bromoform	1600.0	U
108-10-1	4-Methyl-2-Pentanone	1600.0	U
591-78-6	2-Hexanone	1600.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1600.0	U
127-18-4	Tetrachloroethene	1600.0	U
108-88-3	Toluene	1600.0	U
108-90-7	Chlorobenzene	1600.0	U
100-41-4	Ethylbenzene	1600.0	U
100-42-5	Styrene	1600.0	U
1330-20-7	Xylenes, Total	1600.0	620.0 J D
110-75-8	2-Chloroethylvinyl ether	1600.0	U
95-50-1	1,2-Dichlorobenzene	1600.0	U
941-75-1	1,3-Dichlorobenzene	1600.0	U
106-46-7	1,4-Dichlorobenzene	1600.0	U

FORM I - VOA



NYSDOH 10142

NJDEP 70015

GTOOHS PH-0554

EPA NY049

PA 88-37R

M-NY049

315 Fullerton Avenue
 Newburgh, NY 12550
 Tel: (914) 582-0890
 Fax: (914) 582-0841

Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP5033
STL Sample Number: 201646-15
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 79.9
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 21-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0591.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	5	J
67-64-1	Acetone	12	22	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	5	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	2	J
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	32	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinyl ether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTPS036	Date Collected: 16-APR-99
STL Sample Number: 201646-18	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 21-APR-99
% Solid: 82.4	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 1g	Lab File Id: W0598.D
Level: LOW	Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	61		U
74-83-9	Bromomethane	61		U
75-01-4	Vinyl chloride	61		U
75-00-3	Chloroethane	61		U
75-09-2	Methylene chloride	61	11	U
67-64-1	Acetone	61	110	U
75-15-0	Carbon disulfide	61		U
75-35-4	1,1-Dichloroethene	61		U
75-34-3	1,1-Dichloroethane	61		U
540-59-0	1,2-Dichloroethene(total)	61	1000	U
67-66-3	Chloroform	61		U
107-06-2	1,2-Dichloroethane	61		U
78-93-3	2-Butanone	61		U
71-55-6	1,1,1-Trichloroethane	61		U
56-23-5	Carbon tetrachloride	61		U
108-05-4	Vinyl acetate	61		U
75-27-4	Bromodichloromethane	61		U
78-87-5	1,2-Dichloropropane	61		U
10061-01-5	cis-1,3-Dichloropropene	61		U
79-01-6	Trichloroethene	61	8800	E
71-43-2	Benzene	61	9	U
124-48-1	Dibromochloromethane	61		U
10061-02-6	trans-1,3-Dichloropropene	61		U
79-00-5	1,1,2-trichloroethane	61		U
75-29-2	Bromoform	61		U
108-10-1	4-Methyl-2-pentanone	61	80	U
591-78-6	2-Hexanone	61		U
79-34-5	1,1,2,2-Tetrachloroethane	61		U
127-18-4	Tetrachloroethene	61	14	E
108-88-3	Toluene	61	2100	U
108-90-7	Chlorobenzene	61		U
100-41-4	Ethylbenzene	61	780	U
100-42-5	Styrene	61		U
1330-20-7	Xylenes, Total	61	3400	E
110-75-8	2-Chloroethylvinylether	61		U
95-50-1	1,2-Dichlorobenzene	61		U
541-73-1	1,3-Dichlorobenzene	61		U
106-46-7	1,4-Dichlorobenzene	61		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PC1PC016701

STL Lab No.: 201646-18DL

Client Name: Duke Engineering

Project Name: TM8097

% Solid: 82.4

Matrix: Soil

Sample Wt/Vol.: 4 g

Level: med

Soil Extract Volume: 10000 ul

Date Collected: 4/16/99

Date Received: 4/17/99

Date Extracted:

Date Analyzed: 4/23/99

Report Date: 4/26/99

Column: DB-624

Lab File ID: V3668.D

Dilution Factor: 1

Soil Aliquot Volume: 50 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	3000.0	U
74-83-9	Bromomethane	3000.0	U
75-01-4	Vinyl Chloride	3000.0	U
75-00-3	Chloroethane	3000.0	U
75-09-2	Methylene Chloride	3000.0	U
67-64-1	Acetone	3000.0	U
75-15-0	Carbon Disulfide	3000.0	U
75-35-4	1,1-Dichloroethene	3000.0	U
75-34-3	1,1-Dichloroethane	3000.0	U
540-59-0	1,2-Dichloroethene, Total	3000.0	910.0 J D
67-66-3	Chloroform	3000.0	U
107-06-2	1,2-Dichloroethane	3000.0	U
78-93-3	2-Butanone	3000.0	1300.0 J D B
71-55-6	1,1,1-Trichloroethane	3000.0	U
56-23-5	Carbon Tetrachloride	3000.0	U
108-05-4	Vinyl Acetate	3000.0	U
75-27-4	Bromodichloromethane	3000.0	U
78-87-5	1,2-Dichloropropane	3000.0	U
10061-01-5	cis-1,3-Dichloropropene	3000.0	U
79-01-6	Trichloroethene	3000.0	31000.0 D
71-43-3	Benzene	3000.0	U
124-48-1	Dibromochloromethane	3000.0	U
10061-02-6	trans-1,3-Dichloropropene	3000.0	U
79-00-5	1,1,2-Trichloroethane	3000.0	U
75-25-2	Bromoform	3000.0	U
108-10-1	4-Methyl-2-Pentanone	3000.0	U
591-78-6	2-Hexanone	3000.0	U
79-34-5	1,1,2,2-Tetrachloroethane	3000.0	U
127-18-4	Tetrachloroethene	3000.0	U
108-88-3	Toluene	3000.0	3600.0 D
108-90-7	Chlorobenzene	3000.0	U
100-41-4	Ethylbenzene	3000.0	2200.0 J D
100-42-5	Styrene	3000.0	U
1330-20-7	Xylenes, Total	3000.0	11000.0 D
110-75-8	2-Chloroethylvinyl ether	3000.0	U
95-50-1	1,2-Dichlorobenzene	3000.0	U
541-73-1	1,3-Dichlorobenzene	3000.0	U
106-46-7	1,4-Dichlorobenzene	3000.0	U

FORM I - VOA



NYSDOH 10142

NJDEP 73015

CTGCHS PH-0554

EPA NY049

PA 68-379

M-NY049

 315 Fullerton Avenue
 Newburgh, NY 12550
 Tel: (914) 562-0890
 Fax: (914) 562-0841

Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S038

Date Collected: 20-APR-99

STL Sample Number: 201736-14

Date Received: 21-APR-99

Client Name: Duke Engineering

Date Extracted:

Project Name: TM8097

Date Analyzed: 23-APR-99

* Solid: 82.6

Report Date: 28-APR-99

Matrix: 3 Soil/Sldg

Column: DB-624

Sample Wt/Vol: 5g

Lab File Id: W0638.D

Level: LOW

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	6	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12		U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	1	J
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S041

Date Collected: 20-APR-99

STL Sample Number: 201735-08

Date Received: 21-APR-99

Client Name: Duke Engineering

Date Extracted:

Project Name: TH8097

Date Analyzed: 26-APR-99

x Solid: 86.5

Report Date: 27-APR-99

Matrix: 3 Soil/Sldg

Column: DB-624

Sample Wt/Vol: 2g

Lab File Id: W0665.D

Level: LOW

Dilution Factor: 2.50

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	23		U
74-83-9	Bromomethane	23		U
75-01-4	Vinyl chloride	23	72	U
75-00-3	Chloroethane	23		U
75-09-2	Methylene chloride	23		U
67-64-1	Acetone	23	23	U
75-15-0	Carbon disulfide	23	8	J
75-35-4	1,1-Dichloroethene	23	8	J
75-34-3	1,1-Dichloroethane	23		U
540-59-0	1,2-Dichloroethene(total)	23	1800	E
67-66-3	Chloroform	23		U
107-06-2	1,2-Dichloroethane	23		U
78-93-3	2-Butanone	23		U
71-55-6	1,1,1-Trichloroethane	23		U
56-23-5	Carbon tetrachloride	23		U
108-05-4	Vinyl acetate	23		U
75-27-4	Bromodichloromethane	23		U
78-87-5	1,2-Dichloropropane	23		U
10061-01-5	cis-1,3-Dichloropropene	23		U
79-01-6	Trichloroethene	23	550	E
71-43-2	Benzene	23	7	J
124-48-1	Dibromochloromethane	23		U
10061-02-6	trans-1,3-Dichloropropene	23		U
79-00-5	1,1,2-trichloroethane	23		U
75-25-2	Bromoform	23		U
108-10-1	4-Methyl-2-pentanone	23	20	J
591-78-6	2-Hexanone	23		U
79-34-5	1,1,2,2-Tetrachloroethane	23		U
127-18-4	Tetrachloroethene	23		U
108-88-3	Toluene	23	47	U
108-90-7	Chlorobenzene	23		U
100-41-4	Ethylbenzene	23	88	U
100-42-5	Styrene	23		U
1330-20-7	Xylenes, Total	23	140	U
110-75-8	2-Chloroethylvinylether	23		U
95-50-1	1,2-Dichlorobenzene	23		U
541-73-1	1,3-Dichlorobenzene	23		U
106-46-7	1,4-Dichlorobenzene	23		U



NYSOCH 10142

NJDEP 73015

CTDOHS PH-0854

EPA NY049

PA 66-378

MA NY049

315 Fullerton Avenue
Newburgh, NY 12550
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Fax: (914) 562-0841

VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S041DL
 STL Lab No.: 201735-08DL
 Client Name: Duke Engineering
 Project Name: TM8097

% Solid: 86.5

Matrix: Soil

Sample Wt/Vol.: 1 g

Level: low

Soil Extract Volume: ul

Date Collected: 4/20/99

Date Received: 4/21/99

Date Extracted:

Date Analyzed: 4/24/99

Report Date: 4/27/99

Column: DB-624

Lab File ID: W0652.D

Dilution Factor: 5

Soil Aliquot Volume: ul

dg
467109

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	58.0	U
74-83-9	Bromomethane	58.0	U
75-01-4	Vinyl Chloride	58.0	18.0 J D
75-00-3	Chloroethane	58.0	U
75-08-2	Methylene Chloride	58.0	U
67-64-1	Acetone	58.0	26.0 J D
75-15-0	Carbon Disulfide	58.0	U
75-35-4	1,1-Dichloroethene	58.0	U
75-34-3	1,1-Dichloroethane	58.0	U
540-59-0	1,2-Dichloroethene, Total	58.0	780.0 D
67-66-3	Chloroform	58.0	U
107-06-2	1,2-Dichloroethane	58.0	U
78-93-3	2-Butanone	58.0	U
71-55-6	1,1,1-Trichloroethane	58.0	U
56-23-5	Carbon Tetrachloride	58.0	U
108-05-4	Vinyl Acetate	58.0	U
75-27-4	Bromodichloromethane	58.0	U
78-87-5	1,2-Dichloropropane	58.0	U
10061-01-5	cis-1,3-Dichloropropene	58.0	U
79-01-6	Trichloroethene	58.0	520.0 D
71-43-2	Benzene	58.0	U
124-48-1	Dibromochloromethane	58.0	U
10061-02-0	trans-1,3-Dichloropropene	58.0	U
79-00-5	1,1,2-Trichloroethane	58.0	U
74-23-2	Bromoform	58.0	U
108-10-1	4-Methyl-2-Pentanone	58.0	16.0 J D
591-78-6	2-Hexanone	58.0	U
79-34-5	1,1,2,2-Tetrachloroethane	58.0	U
127-18-4	Tetrachloroethene	58.0	U
108-88-3	Toluene	58.0	31.0 J D
108-90-7	Chlorobenzene	58.0	U
100-41-4	Ethylbenzene	58.0	61.0 D
100-42-5	Styrene	58.0	U
1330-20-7	Xylenes, Total	58.0	170.0 D
110-75-5	2-Chloroethylvinylether	58.0	U
95-50-1	1,2-Dichlorobenzene	58.0	U
94-73-1	1,3-Dichlorobenzene	58.0	U
106-46-7	1,4-Dichlorobenzene	58.0	U

FORM I - VOA



NYSDOH 10142

NJDEP 73015

CTDOHS PH-0564

EPA NY049

PA 60-370

MA NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S043	Date Collected: 20-APR-99
STL Sample Number: 201736-20	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 24-APR-99
% Solid: 82.4	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 5g	Lab File Id: W0649D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	180	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12		U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	24	U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	2	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
143-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S044
STL Sample Number: 201735-01
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 86.8
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 22-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: V3645.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	29	U
75-15-0	Carbon disulfide	12	2	J
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	2	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	5	J
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	6	J
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12	2	J
591-78-6	2-Hexanone	12	4	J
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	6	J
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	5	J
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12	130	U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTPS004

Date Collected: 16-APR-99

STL Sample Number: 201646-04

Date Received: 17-APR-99

Client Name: Duke Engineering

Date Extracted:

Project Name: TM8097

Date Analyzed: 21-APR-99

% Solid: 81.4

Report Date: 27-APR-99

Matrix: 3 Soil/51dg

Column: DB-624

Sample Wt/Vol: 5g

Lab File Id: W0587.D

Level: LOW

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	1	U
67-64-1	Acetone	12	11	JB
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	4	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	3	J
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



NYSDOH 10142

NIEP 73015

CTDOHS PH-0554

EPA NY040

PA 88-378

M-NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTPS009
STL Sample Number: 201646-09
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 82.6
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 21-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0590.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	16	B
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	5	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	17	J
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	13	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	3	J
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voas
8260B(PP)

Client ID: PCTP-S030
STL Sample Number: 201736-18
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 83.4
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 24-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W0647.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	28	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	10	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	3	J
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12		U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
82608(PP)

Client ID: PCTP-S031
STL Sample Number: 201736-17
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 79.1
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 26-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: W4655.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	13		U
74-83-9	Bromomethane	13		U
75-01-4	Vinyl chloride	13	6	U
75-00-3	Chloroethane	13		U
75-09-2	Methylene chloride	13		U
67-64-1	Acetone	13	8	U
75-15-0	Carbon disulfide	13		U
75-35-4	1,1-Dichloroethene	13		U
75-34-3	1,1-Dichloroethane	13		U
540-59-0	1,2-Dichloroethene(total)	13	79	U
67-66-3	Chloroform	13		U
107-06-2	1,2-Dichloroethane	13		U
78-93-3	2-Butanone	13		U
71-55-6	1,1,1-Trichloroethane	13		U
56-23-5	Carbon tetrachloride	13		U
108-05-4	Vinyl acetate	13		U
75-27-4	Bromodichloromethane	13		U
78-87-5	1,2-Dichloropropane	13		U
10061-01-5	cis-1,3-Dichloropropene	13		U
79-01-6	Trichloroethene	13	48	U
71-43-2	Benzene	13		U
124-48-1	Dibromochloromethane	13		U
10061-02-6	trans-1,3-Dichloropropene	13		U
79-00-5	1,1,2-trichloroethane	13		U
75-25-2	Bromoform	13		U
108-10-1	4-Methyl-2-pentanone	13		U
691-78-6	2-Hexanone	13		U
79-34-5	1,1,2,2-Tetrachloroethane	13		U
127-18-4	Tetrachloroethene	13		U
108-88-3	Toluene	13		U
108-90-7	Chlorobenzene	13		U
100-41-4	Ethylbenzene	13		U
100-42-5	Styrene	13		U
1330-20-7	Xylenes, Total	13		U
110-75-8	2-Chloroethylvinylether	13		U
95-50-1	1,2-Dichlorobenzene	13		U
541-73-1	1,3-Dichlorobenzene	13		U
106-46-7	1,4-Dichlorobenzene	13		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S037

Date Collected: 20-APR-99

STL Sample Number: 201736-13

Date Received: 21-APR-99

Client Name: Duka Engineering

Date Extracted:

Project Name: TM8097

Date Analyzed: 23-APR-99

% Solid: 84.1

Report Date: 28-APR-99

Matrix: 3 Soil/Sldg

Column: DB-624

Sample Wt/Vol: 5g

Lab File Id: W0637.0

Level: LOW

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	25	U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12		U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	2	U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	2	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S047
STL Sample Number: 201736-11
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 81.7
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 1g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 23-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: V3663.D
Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	61		U
74-83-9	Bromomethane	61		U
75-01-4	Vinyl chloride	61		U
75-00-3	Chloroethane	61		U
75-09-2	Methylene chloride	61		U
67-64-1	Acetone	61		U
75-15-0	Carbon disulfide	61		U
75-35-4	1,1-Dichloroethene	61		U
75-34-3	1,1-Dichloroethane	61	930	U
540-59-0	1,2-Dichloroethene(total)	61		U
67-66-3	Chloroform	61		U
107-06-2	1,2-Dichloroethane	61		U
78-93-3	2-Butanone	61		U
71-55-6	1,1,1-Trichloroethane	61		U
56-23-5	Carbon tetrachloride	61		U
108-05-4	Vinyl acetate	61		U
75-27-4	Bromodichloromethane	61		U
78-87-5	1,2-Dichloropropane	61		U
10061-01-5	cis-1,3-Dichloropropene	61	1600	E
79-01-6	Trichloroethene	61		U
71-43-2	Benzene	61		U
124-48-1	Dibromochloromethane	61		U
10061-02-6	trans-1,3-Dichloropropene	61		U
79-00-5	1,1,2-trichloroethane	61		U
75-25-2	Bromoform	61		U
108-10-1	4-Methyl-2-pentanone	61		U
591-78-6	2-Hexanone	61		U
79-34-5	1,1,2,2-Tetrachloroethane	61		U
127-18-4	Tetrachloroethene	61		U
108-88-3	Toluene	61		U
108-90-7	Chlorobenzene	61		U
100-41-4	Ethylbenzene	61		U
100-42-5	Styrene	61	6	J
1330-20-7	Xylenes, Total	61		U
110-75-8	2-Chloroethylvinylether	61		U
95-50-1	1,2-Dichlorobenzene	61		U
541-73-1	1,3-Dichlorobenzene	61		U
106-46-7	1,4-Dichlorobenzene	61		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: ~~PCTP-6026DL~~
 STL Lab No.: 201736-11DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 81.7
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: med
 Soil Extract Volume: 10000 ul

Date Collected: 4/20/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/24/99
 Report Date: 4/28/99
 Column: DB-624
 Lab File ID: V3679.D
 Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1500.0	U
74-83-9	Bromomethane	1500.0	U
75-01-4	Vinyl Chloride	1500.0	U
75-00-3	Chloroethane	1500.0	U
75-09-2	Methylene Chloride	1500.0	U
67-64-1	Acetone	1500.0	750.0 J D B
75-15-0	Carbon Disulfide	1500.0	U
75-35-4	1,1-Dichloroethene	1500.0	U
75-34-3	1,1-Dichloroethane	1500.0	U
540-59-0	1,2-Dichloroethene, Total	1500.0	540.0 J D
67-66-3	Chloroform	1500.0	U
107-06-2	1,2-Dichloroethane	1500.0	1200.0 J D B
78-93-3	2-Butanone	1500.0	U
71-55-6	1,1,1-Trichloroethane	1500.0	U
56-23-5	Carbon Tetrachloride	1500.0	U
108-05-4	Vinyl Acetate	1500.0	U
75-27-4	Bromodichloromethane	1500.0	U
78-87-5	1,2-Dichloropropane	1500.0	U
10061-01-3	cis-1,3-Dichloropropene	1500.0	U
79-01-6	Trichloroethene	1500.0	1100.0 J D
71-43-2	Benzene	1500.0	U
124-48-1	Dibromochloromethane	1500.0	U
10061-02-4	trans-1,3-Dichloropropene	1500.0	U
79-00-5	1,1,2-Trichloroethane	1500.0	U
75-25-2	Bromoform	1500.0	U
108-10-1	4-Methyl-2-Pentanone	1500.0	U
591-78-6	2-Hexanone	1500.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1500.0	U
127-18-3	Tetrachloroethane	1500.0	U
108-88-3	Toluene	1500.0	U
108-90-7	Chlorobenzene	1500.0	U
100-41-4	Ethylbenzene	1500.0	U
100-42-5	Styrene	1500.0	U
1330-20-7	Xylenes, Total	1500.0	U
110-75-8	2-Chloroethyl Vinyl Ether	1500.0	U
95-50-1	1,2-Dichlorobenzene	1500.0	U
541-73-1	1,3-Dichlorobenzene	1500.0	U
106-46-7	1,4-Dichlorobenzene	1500.0	U

FORM 1 - VOA



Volatile Organics Analysis Data Sheet
Form 1 Voa
82608(PP)

Client ID: PCTP-S048	Date Collected: 20-APR-99
STL Sample Number: 201736-15	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 23-APR-99
% Solid: 77.4	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 5g	Lab File Id: W0539.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	13		U
74-83-9	Bromomethane	13		U
75-01-4	Vinyl chloride	13	34	U
75-00-3	Chloroethane	13		U
75-09-2	Methylene chloride	13		U
67-64-1	Acetone	13	8	U
75-15-0	Carbon disulfide	13	8	U
75-35-4	1,1-Dichloroethene	13		U
75-34-3	1,1-Dichloroethane	13		U
540-59-0	1,2-Dichloroethene(total)	13	180	U
67-66-3	Chloroform	13		U
107-06-2	1,2-Dichloroethane	13		U
78-93-3	2-Butanone	13		U
71-55-6	1,1,1-Trichloroethane	13		U
56-23-5	Carbon tetrachloride	13		U
108-05-4	Vinyl acetate	13		U
75-27-4	Bromodichloroethane	13		U
78-87-5	1,2-Dichloropropane	13		U
10061-01-5	cis-1,3-Dichloropropene	13		U
79-01-6	Trichloroethene	13	25	U
71-43-2	Benzene	13		U
124-48-1	Dibromochloromethane	13		U
10061-02-6	trans-1,3-Dichloropropene	13		U
79-00-5	1,1,2-trichloroethane	13		U
75-25-2	Bromoform	13		U
108-10-1	4-Methyl-2-pentanone	13		U
591-78-6	2-Hexanone	13		U
79-34-5	1,1,2,2-Tetrachloroethane	13		U
127-18-4	Tetrachloroethene	13		U
108-88-3	Toluene	13		U
108-90-7	Chlorobenzene	13		U
100-41-4	Ethylbenzene	13		U
100-42-5	Styrene	13		U
1330-20-7	Xylenes, Total	13		U
110-75-8	2-Chloroethylvinylether	13		U
95-50-1	1,2-Dichlorobenzene	13		U
541-73-1	1,3-Dichlorobenzene	13		U
106-46-7	1,4-Dichlorobenzene	13		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S049	Date Collected: 20-APR-99
STL Sample Number: 201736-16	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 21-APR-99
% Solid: 80.6	Report Date: 23-APR-99
Matrix: 3 Soil/Slidg	Column: DB-624
Sample Wt/Vol: 5g	Lab File Id: M0645.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	52	U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	6	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12	2	J
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	330	E
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12		U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	140	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S049DL
STL Lab No.: 201736-16DL
Client Name: Duke Engineering
Project Name: TM8097

% Solid: 80.6

Matrix: Soil

Sample Wt/Vol.: 1 g

Level: low

Soil Extract Volume: ul

Date Collected: 4/20/99

Date Received: 4/21/99

Date Extracted:

Date Analyzed: 4/26/99

Report Date: 4/28/99

Column: DB-624

Lab File ID: W0663.D

Dilution Factor: 5

Soil Aliquot Volume: ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	62.0	U
74-83-9	Bromomethane	62.0	U
75-01-4	Vinyl Chloride	62.0	44.0 J D
75-00-3	Chloroethane	62.0	U
75-09-2	Methylene Chloride	62.0	U
67-64-1	Acetone	62.0	13.0 J D
75-13-0	Carbon Disulfide	62.0	U
75-35-4	1,1-Dichloroethene	62.0	U
75-34-3	1,1-Dichloroethane	62.0	U
540-59-0	1,2-Dichloroethene, Total	62.0	330.0 D
67-66-3	Chloroform	62.0	U
107-06-2	1,2-Dichloroethane	62.0	U
78-93-3	2-Butanone	62.0	U
71-55-6	1,1,1-Trichloroethane	62.0	U
56-23-5	Carbon Tetrachloride	62.0	U
108-05-4	Vinyl Acetate	62.0	U
75-27-4	Bromodichloromethane	62.0	U
78-87-5	1,2-Dichloropropane	62.0	U
10061-01-5	cis-1,3-Dichloropropene	62.0	U
79-01-6	Trichloroethene	62.0	120.0 D
71-43-2	Benzene	62.0	U
124-48-1	Dibromochloromethane	62.0	U
10061-02-6	trans-1,3-Dichloropropene	62.0	U
79-00-5	1,1,2-Trichloroethane	62.0	U
75-25-2	Bromoform	62.0	U
108-10-1	4-Methyl-2-Pentanone	62.0	U
591-78-6	2-Hexanone	62.0	U
79-34-5	1,1,2,2-Tetrachloroethane	62.0	U
127-18-4	Tetrachloroethene	62.0	U
108-88-3	Toluene	62.0	U
108-90-7	Chlorobenzene	62.0	U
100-41-4	Ethylbenzene	62.0	U
100-42-5	Styrene	62.0	U
1330-20-7	Xylenes, Total	62.0	U
110-75-8	2-Chloroethylvinyl ether	62.0	U
95-50-1	1,2-Dichlorobenzene	62.0	U
541-73-1	1,3-Dichlorobenzene	62.0	U
106-46-7	1,4-Dichlorobenzene	62.0	U

FORM I - VOA



Volatile Organics Analysis Data Sheet
Form 1 Voa
82608(PP)

Client ID: PCTP-S050

Date Collected: 20-APR-99

STL Sample Number: 201735-02

Date Received: 21-APR-99

Client Name: Duke Engineering

Date Extracted:

Project Name: TM8097

Date Analyzed: 22-APR-99

% Solid: 85.6

Report Date: 27-APR-99

Matrix: 3 Soil/Sldg

Column: DB-624

Sample Wt/Vol: 5g

Lab File Id: V3645.D

Level: LOW

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12		U
67-64-1	Acetone	12	16	U
75-15-0	Carbon disulfide	12	3	J
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12	2	J
540-59-0	1,2-Dichloroethene(total)	12	2	J
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	2	J
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12		U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	1	J
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S051
STL Sample Number: 201735-04
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 79.6
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 1g
Level: LOW

Date Collected: 20 APR-99
Date Received: 21 APR-99
Date Extracted:
Date Analyzed: 22 APR-99
Report Date: 28 APR-99
Column: DB-624
Lab File Id: V3647.D
Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	63		U
74-83-9	Bromomethane	63		U
75-01-4	Vinyl chloride	63	870	U
75-00-3	Chloroethane	63		U
75-09-2	Methylene chloride	63		U
67-64-1	Acetone	63	27	J
75-15-0	Carbon disulfide	63	31	J
75-35-4	1,1-Dichloroethene	63	76	J
75-34-3	1,1-Dichloroethane	63		U
540-59-0	1,2-Dichloroethene (total)	63	19000	E
67-66-3	Chloroform	63		U
107-06-2	1,2-Dichloroethane	63		U
78-93-3	2-Butanone	63		U
71-55-6	1,1,1-Trichloroethane	63		U
56-23-5	Carbon tetrachloride	63		U
108-05-4	Vinyl acetate	63		U
75-27-4	Bromodichloromethane	63		U
78-87-5	1,2-Dichloropropane	63		U
10061-01-5	cis-1,3-Dichloropropene	63		U
79-01-6	Trichloroethene	63	500	U
71-43-2	Benzene	63	52	J
124-48-1	Dibromochloromethane	63		U
10061-02-6	trans-1,3-Dichloropropene	63		U
79-00-5	1,1,2-trichloroethane	63		U
75-25-2	Bromoform	63		U
108-10-1	4-Methyl-2-pentanone	63		U
591-78-6	2-Hexanone	63		U
79-34-5	1,1,2,2-Tetrachloroethane	63		U
127-18-4	Tetrachloroethane	63		U
108-88-3	Toluene	63	2000	E
108-90-7	Chlorobenzene	63	22	J
100-41-4	Ethylbenzene	63	5100	U
100-42-5	Styrene	63		U
1330-20-7	Xylenes, Total	63	12000	E
110-75-8	2-Chloroethylvinylether	63		U
95-50-1	1,2-Dichlorobenzene	63		U
541-73-1	1,3-Dichlorobenzene	63		U
106-46-7	1,4-Dichlorobenzene	63		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S051DL
 STL Lab No.: 201735-04DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 79.6
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: med
 Soil Extract Volume: 10000 µl

Date Collected: 4/20/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/27/99
 Column: DB-624
 Lab File ID: V3673.D
 Dilution Factor:
 Soil Aliquot Volume: 100 µl

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1600.0	U
74-83-9	Bromomethane	1600.0	U
75-01-4	Vinyl Chloride	1600.0	U
75-00-3	Chloroethane	1600.0	U
75-09-2	Methylene Chloride	1600.0	U
67-64-1	Acetone	1600.0	980.0 J D B
75-13-0	Carbon Disulfide	1600.0	U
75-35-4	1,1-Dichloroethene	1600.0	U
75-34-9	1,1-Dichloroethane	1600.0	U
540-59-0	1,2-Dichloroethene, Total	1600.0	10000.0 D
67-66-3	Chloroform	1600.0	U
107-06-2	1,2-Dichloroethane	1600.0	U
78-03-1	2-Butanone	1600.0	1400.0 J D B
71-55-6	1,1,1-Trichloroethane	1600.0	U
56-23-5	Carbon Tetrachloride	1600.0	U
108-05-4	Vinyl Acetate	1600.0	U
75-27-4	Bromodichloromethane	1600.0	U
78-87-5	1,2-Dichloropropane	1600.0	U
10061-01-5	cis-1,3-Dichloropropene	1600.0	U
79-01-6	Trichloroethene	1600.0	180.0 J D
71-43-2	Benzene	1600.0	U
124-48-1	Dibromochloromethane	1600.0	U
10061-02-6	trans-1,3-Dichloropropene	1600.0	U
79-00-5	1,1,2-Trichloroethane	1600.0	U
78-23-2	Bromoform	1600.0	U
108-10-1	4-Methyl-2-Pentanone	1600.0	U
591-78-6	2-Hexanone	1600.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1600.0	U
122-18-4	Tetrachloroethene	1600.0	U
108-88-3	Toluene	1600.0	690.0 J D
108-90-7	Chlorobenzene	1600.0	U
100-41-4	Ethylbenzene	1600.0	2200.0 D
100-42-5	Styrene	1600.0	U
1330-20-7	Xylenes, Total	1600.0	8100.0 D
110-75-8	2-Chloroethylvinyl ether	1600.0	U
95-50-1	1,2-Dichlorobenzene	1600.0	U
541-73-1	1,3-Dichlorobenzene	1600.0	U
106-46-7	1,4-Dichlorobenzene	1600.0	U

FORM I - VOA



NYSDOH 10142

NUDEP 73015

CTDOHS PH-0554

EPA NY049

PA 88-378

M-NY049

315 Fullerton Avenue
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Volatile Organics Analysis Data Sheet
Form 1 Voa
82608(PP)

Client ID: PCTP-S052
STL Sample Number: 201735-05
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 79.3
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 1g
Level: LOW

Date Collected: 20-APR-99
Date Received: 21-APR-99
Date Extracted:
Date Analyzed: 22-APR-99
Report Date: 28-APR-99
Column: DB-624
Lab File Id: V3649.D
Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	63		U
74-83-9	Bromomethane	63		U
75-01-4	Vinyl chloride	63	550	U
75-00-3	Chloroethane	63		U
75-09-2	Methylene chloride	63		U
67-64-1	Acetone	63	370	U
75-15-0	Carbon disulfide	63	10	J
75-35-4	1,1-Dichloroethene	63	71	U
75-34-3	1,1-Dichloroethane	63		U
540-59-0	1,2-Dichloroethene(total)	63	15000	E
67-66-3	Chloroform	63		U
107-06-2	1,2-Dichloroethane	63		U
78-93-3	2-Butanone	63		U
71-55-6	1,1,1-Trichloroethane	63	19	J
56-23-5	Carbon tetrachloride	63		U
108-05-4	Vinyl acetate	63		U
75-27-4	Bromodichloromethane	63		U
78-87-5	1,2-Dichloropropane	63		U
10061-01-5	cis-1,3-Dichloropropene	63		U
79-01-6	Trichloroethene	63	27000	E
71-43-2	Benzene	63	270	U
124-48-1	Dibromochloromethane	63		U
10061-02-6	trans-1,3-Dichloropropene	63		U
79-00-5	1,1,2-trichloroethane	63		U
75-25-2	Bromoform	63		U
108-10-1	4-Methyl-2-pentanone	63	670	U
591-78-6	2-Hexanone	63		U
79-34-5	1,1,2,2-Tetrachloroethane	63		U
127-18-4	Tetrachloroethene	63	90	U
108-88-3	Toluene	63	23000	E
108-90-7	Chlorobenzene	63	120	U
100-41-4	Ethylbenzene	63	11000	E
100-42-5	Styrene	63		U
1330-20-7	Xylenes, Total	63	42000	E
110-75-8	2-Chloroethylvinylether	63		U
95-50-1	1,2-Dichlorobenzene	63		U
541-73-1	1,3-Dichlorobenzene	63		U
106-46-7	1,4-Dichlorobenzene	63		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S052DL
 STL Lab No.: 201735-05DL
 Client Name: Duke Engineering
 Project Name: TM8097

% Solid: 79.3

Matrix: Soil

Sample Wt/Vol.: 4 g

Level: med

Soil Extract Volume: 10000 ul

Date Collected: 4/20/99

Date Received: 4/21/99

Date Extracted:

Date Analyzed: 4/24/99

Report Date: 4/27/99

Column: DB-624

Lab File ID: V3682.D

Dilution Factor: 1

Soil Aliquot Volume: 5 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	32000.0	U
74-83-9	Bromomethane	32000.0	U
75-01-4	Vinyl Chloride	32000.0	U
75-00-3	Chloroethane	32000.0	U
75-09-2	Methylene Chloride	32000.0	U
67-64-1	Acetone	32000.0	U
75-15-0	Carbon Disulfide	32000.0	U
75-35-4	1,1-Dichloroethene	32000.0	U
75-34-3	1,1-Dichloroethane	32000.0	U
540-59-0	1,2-Dichloroethene, Total	32000.0	12000.0 J D
67-66-3	Chloroform	32000.0	U
107-06-2	1,2-Dichloroethane	32000.0	U
78-93-3	2-Butanone	32000.0	U
71-55-6	1,1,1-Trichloroethane	32000.0	U
56-23-5	Carbon Tetrachloride	32000.0	U
108-05-4	Vinyl Acetate	32000.0	U
75-27-4	Bromodichloromethane	32000.0	U
78-87-5	1,2-Dichloropropane	32000.0	U
10061-01-5	cis-1,3-Dichloropropene	32000.0	U
79-01-6	Trichloroethene	32000.0	150000.0 D
71-43-2	Benzene	32000.0	U
124-48-1	Dibromochloromethane	32000.0	U
10061-02-6	trans-1,3-Dichloropropene	32000.0	U
79-00-5	1,1,2-Trichloroethane	32000.0	U
75-25-2	Bromoform	32000.0	U
108-10-1	4-Methyl-2-Pentanone	32000.0	U
591-78-6	2-Hexanone	32000.0	U
79-34-5	1,1,2,2-Tetrachloroethane	32000.0	U
127-18-4	Tetrachloroethene	32000.0	U
108-88-3	Toluene	32000.0	96000.0 D
108-90-7	Chlorobenzene	32000.0	U
100-41-4	Ethylbenzene	32000.0	62000.0 D
100-42-5	Styrene	32000.0	U
1330-20-7	Xylenes, Total	32000.0	610000.0 D
110-75-8	2-Chloroethylvinyl ether	32000.0	U
95-50-1	1,2-Dichlorobenzene	32000.0	U
541-73-1	1,3-Dichlorobenzene	32000.0	U
106-46-7	1,4-Dichlorobenzene	32000.0	U

FORM I - VOA



NYSDOH 10142

NIDEP 73015

CDOHS PH-0554

EPA NY049

PA 68 378

MNY049

315 Fullerton Avenue
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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S053
STL Sample Number: 201735-06
Client Name: Duke Engineering
Project Name: TM8097
X Solid: 80.1
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 1g
Level: LOW

Date Collected: 20 APR-99
Date Received: 21 APR-99
Date Extracted:
Date Analyzed: 22 APR-99
Report Date: 27 APR-99
Column: DB-624
Lab File Id: V3651.D
Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	62		U
74-83-9	Bromomethane	62		U
75-01-4	Vinyl chloride	62	1700	E
75-00-3	Chloroethane	62		U
75-09-2	Methylene chloride	62		U
67-64-1	Acetone	62		U
75-15-0	Carbon disulfide	62		U
75-35-4	1,1-Dichloroethene	62	52	J
75-34-3	1,1-Dichloroethane	62		U
540-59-0	1,2-Dichloroethene(total)	62	16000	E
67-66-3	Chloroform	62		U
107-06-2	1,2-Dichloroethane	62		U
78-93-3	2-Butanone	62		U
71-55-6	1,1,1-Trichloroethane	62		U
56-23-6	Carbon tetrachloride	62		U
108-05-4	Vinyl acetate	62		U
75-27-4	Bromodichloromethane	62		U
78-87-5	1,2-Dichloropropane	62		U
10061-01-5	cis-1,3-Dichloropropene	62		U
79-01-6	Trichloroethene	62	62	J
71-43-2	Benzene	62	61	J
124-48-1	Dibromochloromethane	62		U
10061-02-6	trans-1,3-Dichloropropene	62		U
79-00-5	1,1,2-trichloroethane	62		U
75-25-2	Bromoform	62		U
108-10-1	4-Methyl-2-pentanone	62		U
591-78-6	2-Hexanone	62		U
79-34-5	1,1,2,2-Tetrachloroethane	62		U
127-18-4	Tetrachloroethene	62		U
108-88-3	Toluene	62	340	U
108-90-7	Chlorobenzene	62	18	J
100-41-4	Ethylbenzene	62	190	U
100-42-5	Styrene	62		U
1330-20-7	Xylenes, Total	62	220	U
110-75-8	2-Chloroethylvinylether	62		U
95-50-1	1,2-Dichlorobenzene	62		U
541-73-1	1,3-Dichlorobenzene	62		U
106-46-7	1,4-Dichlorobenzene	62		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S053DL
 STL Lab No.: 201735-06DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 80.1
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: med
 Soil Extract Volume: 10000 ul

Date Collected: 4/20/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/23/99
 Report Date: 4/27/99
 Column: DB-624
 Lab File ID: V3675.D
 Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	1600.0	U
74-83-9	Bromomethane	1600.0	U
75-01-4	Vinyl Chloride	1600.0	260.0 J D
75-00-3	Chloroethane	1600.0	U
75-09-2	Methylene Chloride	1600.0	U
67-64-1	Acetone	1600.0	340.0 J D B
75-15-0	Carbon Disulfide	1600.0	U
75-35-4	1,1-Dichloroethene	1600.0	U
75-34-3	1,1-Dichloroethane	1600.0	U
540-59-0	1,2-Dichloroethene, Total	1600.0	7300.0 D
67-66-3	Chloroform	1600.0	U
107-06-2	1,2-Dichloroethane	1600.0	U
78-93-3	2-Butanone	1600.0	1300.0 J D B
71-55-6	1,1,1-Trichloroethane	1600.0	U
36-23-5	Carbon Tetrachloride	1600.0	U
108-05-4	Vinyl Acetate	1600.0	U
75-27-4	Bromodichloromethane	1600.0	U
78-87-5	1,2-Dichloropropane	1600.0	U
10061-01-5	cis-1,3-Dichloropropene	1600.0	U
79-01-6	Trichloroethene	1600.0	U
71-43-2	Benzene	1600.0	U
124-48-1	Dibromochloromethane	1600.0	U
10061-02-6	trans-1,3-Dichloropropene	1600.0	U
79-00-5	1,1,2-Trichloroethane	1600.0	U
75-25-2	Bromoform	1600.0	U
108-10-1	4-Methyl-2-Pentanone	1600.0	U
591-78-6	2-Hexanone	1600.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1600.0	U
127-18-4	Tetrachloroethene	1600.0	U
108-88-3	Toluene	1600.0	320.0 J D
108-90-7	Chlorobenzene	1600.0	U
100-41-4	Ethylbenzene	1600.0	220.0 J D
100-42-5	Styrene	1600.0	U
1330-20-7	Xylenes, Total	1600.0	420.0 J D
110-75-8	2-Chloroethyl vinyl ether	1600.0	U
95-50-1	1,2-Dichlorobenzene	1600.0	U
541-73-1	1,3-Dichlorobenzene	1600.0	U
106-46-7	1,4-Dichlorobenzene	1600.0	U

FORM I - VOA



NYSDOH 10142

NJDEP 73015

CTDOHS PH-0554

EPA NY040

PA 08-378

M-NY049

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Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: PCTP-S054	Date Collected: 20-APR-99
STL Sample Number: 201735-07	Date Received: 21-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 22-APR-99
% Solid: 92.1	Report Date: 28-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 1g	Lab File Id: V3663.D
Level: LOW	Dilution Factor: 5.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	54		U
74-83-9	Bromomethane	54		U
75-01-4	Vinyl chloride	54	14	J
75-00-3	Chloroethane	54		U
75-09-2	Methylene chloride	54		U
67-64-1	Acetone	54		U
75-15-0	Carbon disulfide	54		U
75-35-4	1,1-Dichloroethene	54	9	J
75-34-3	1,1-Dichloroethane	54	11	J
540-59-0	1,2-Dichloroethene(total)	54	1000	
67-66-3	Chloroform	54		U
107-06-2	1,2-Dichloroethane	54		U
78-93-3	2-Butanone	54		U
71-55-6	1,1,1-Trichloroethane	54	8	J
56-23-5	Carbon tetrachloride	54		U
108-05-4	Vinyl acetate	54		U
75-27-4	Bromodichloromethane	54		U
78-87-5	1,2-Dichloropropane	54		U
10061-01-5	cis-1,3-Dichloropropene	54		U
79-01-6	Trichloroethene	54	4200	E
71-43-2	Benzene	54		U
124-48-1	Dibromochloromethane	54		U
10961-02-6	trans-1,3-Dichloropropene	54		U
79-00-5	1,1,2-trichloroethane	54		U
75-25-2	Bromoform	54		U
108-10-1	4-Methyl-2-pentanone	54		U
591-78-6	2-Hexanone	54		U
79-34-5	1,1,2,2-Tetrachloroethane	54		U
127-18-4	Tetrachloroethene	54		U
108-88-3	Toluene	54	8	J
108-90-7	Chlorobenzene	54		U
100-41-4	Ethylbenzene	54	50	J
100-42-5	Styrene	54		U
1330-20-7	Xylenes, Total	54	72	U
110-75-8	2-Chloroethyl vinyl ether	54		U
95-50-1	1,2-Dichlorobenzene	54		U
541-73-1	1,3-Dichlorobenzene	54		U
106-46-7	1,4-Dichlorobenzene	54		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: PCTP-S054DL
 STL Lab No.: 201735-07DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 92.1
 Matrix: Soil
 Sample Wt/Vol.: 4 g
 Level: med
 Soil Extract Volume: 10000 ul

Date Collected: 4/20/99
 Date Received: 4/21/99
 Date Extracted:
 Date Analyzed: 4/24/99
 Report Date: 4/27/99
 Column: DB-624
 Lab File ID: V3676.D
 Dilution Factor: 1
 Soil Aliquot Volume: 100 ul

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-1	Chloromethane	1400.0	U
74-83-9	Bromomethane	1400.0	U
75-01-4	Vinyl Chloride	1400.0	U
75-00-3	Chloroethane	1400.0	U
75-09-2	Methylene Chloride	1400.0	U
67-64-1	Acetone	1400.0	870.0 J D B
75-15-0	Carbon Disulfide	1400.0	U
75-35-4	1,1-Dichloroethene	1400.0	U
75-34-3	1,1-Dichloroethane	1400.0	U
540-59-0	1,2-Dichloroethene, Total	1400.0	500.0 J D
67-66-3	Chloroform	1400.0	U
107-06-2	1,2-Dichloroethane	1400.0	U
78-93-3	2-Butanone	1400.0	1200.0 J D B
71-55-6	1,1,1-Trichloroethane	1400.0	U
56-23-5	Carbon Tetrachloride	1400.0	U
108-05-4	Vinyl Acetate	1400.0	U
75-27-3	Bromodichloromethane	1400.0	U
78-87-5	1,2-Dichloropropane	1400.0	U
10061-01-3	cis-1,3-Dichloropropene	1400.0	U
79-01-6	Trichloroethene	1400.0	4100.0 D
71-43-2	Benzene	1400.0	U
124-48-1	Dibromochloromethane	1400.0	U
10061-02-6	trans-1,3-Dichloropropene	1400.0	U
79-00-5	1,1,2-Trichloroethane	1400.0	U
75-25-2	Bromoform	1400.0	U
108-10-1	4-Methyl-2-Pentanone	1400.0	U
591-78-6	2-Hexanone	1400.0	U
79-34-5	1,1,2,2-Tetrachloroethane	1400.0	U
127-18-4	Tetrachloroethene	1400.0	U
108-88-3	Toluene	1400.0	U
108-96-7	Chlorobenzene	1400.0	U
100-41-4	Ethylbenzene	1400.0	150.0 J D
100-42-3	Styrene	1400.0	U
1330-20-7	Xylenes, Total	1400.0	340.0 J D
110-75-8	2-Chloroethyl Vinyl Ether	1400.0	U
95-50-1	1,2-Dichlorobenzene	1400.0	U
541-73-1	1,3-Dichlorobenzene	1400.0	U
106-46-7	1,4-Dichlorobenzene	1400.0	U

FORM I - VOA



NYS DOH 10142

NJ DEP 73015

CT DOHS PH 0554

EPA NY049

PA 68-378

MN NY049

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Volatile Organics Analysis Data Sheet
Form 1 Via
8260B(PP)

Client ID: SITP1
STL Sample Number: 201646-11
Client Name: Duke Engineering
Project Name: TM8097
% Solid: 82.2
Matrix: 3 Soil/Sldg
Sample Wt/Vol: 5g
Level: LOW

Date Collected: 16-APR-99
Date Received: 17-APR-99
Date Extracted:
Date Analyzed: 22-APR-99
Report Date: 27-APR-99
Column: DB-624
Lab File Id: W0601.D
Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	49	U
67-64-1	Acetone	12		U
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12	1	U
540-59-0	1,2-Dichloroethene(total)	12	85	U
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-1	2-Butanone	12	4	U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	28	U
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	17		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Volatile Organics Analysis Data Sheet

Form 1 Voa
8260B(PP)

Client ID: SITP2

Date Collected: 16-APR-99

SIL Sample Number: 201646-12

Date Received: 17-APR-99

Client Name: Duke Engineering

Date Extracted:

Project Name: TM8097

Date Analyzed: 22-APR-99

% Solid: 81.3

Report Date: 27-APR-99

Matrix: 3 Soil/Sldg

Column: DB-624

Sample Wt/Vol: 2.5g

Lab File Id: W0604.D

Level: LOW

Dilution Factor: 2.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	25		U
74-83-9	Bromomethane	25		U
75-01-4	Vinyl chloride	25	16	J
75-00-3	Chloroethane	25		U
75-09-2	Methylene chloride	25	3	J
67-64-1	Acetone	25	210	U
75-15-0	Carbon disulfide	25	12	J
75-35-4	1,1-Dichloroethene	25		U
75-34-3	1,1-Dichloroethane	25		U
540-59-0	1,2-Dichloroethene(total)	25	940	E
67-66-3	Chloroform	25		U
107-06-2	1,2-Dichloroethane	25		U
78-93-3	2-Butanone	25		U
71-55-6	1,1,1-Trichloroethane	25		U
56-23-5	Carbon tetrachloride	25		U
108-05-4	Vinyl acetate	25		U
75-27-4	Bromodichloromethane	25		U
78-87-5	1,2-Dichloropropane	25		U
10061-01-5	cis-1,3-Dichloropropene	25		U
79-01-6	Trichloroethene	25	250	U
71-43-2	Benzene	25		U
124-48-1	Dibromochloromethane	25		U
10061-02-6	trans-1,3-Dichloropropene	25		U
79-00-5	1,1,2-trichloroethane	25		U
75-25-2	Bromoform	25		U
108-10-1	4-Methyl-2-pentanone	25		U
591-78-6	2-Hexanone	25		U
79-34-5	1,1,2,2-Tetrachloroethane	25		U
127-18-4	Tetrachloroethene	25		U
108-88-3	Toluene	25	4	J
108-90-7	Chlorobenzene	25		U
100-41-4	Ethylbenzene	25		U
100-42-5	Styrene	25		U
1330-20-7	Xylenes, Total	25	2	J
110-75-8	2-Chloroethylvinylether	25		U
95-50-1	1,2-Dichlorobenzene	25		U
541-73-1	1,3-Dichlorobenzene	25		U
106-46-7	1,4-Dichlorobenzene	25		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: S1TP2DL
STL Lab No.: 201646-12DL
Client Name: Duke Engineering
Project Name: TM8097

% Solid: 81.3

Matrix: Soil

Sample Wt/Vol: 1 g

Level: low

Soil Extract Volume: ul

Date Collected: 4/16/99

Date Received: 4/17/99

Date Extracted:

Date Analyzed: 4/21/99

Report Date: 4/26/99

Column: DB-624

Lab File ID: W0595.D

Dilution Factor: 5

Soil Aliquot Volume: ul

deg
4/24/99

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	62.0	U
74-83-9	Bromomethane	62.0	U
75-01-4	Vinyl Chloride	62.0	120.0 D
75-00-3	Chloroethane	62.0	U
75-09-2	Methylene Chloride	62.0	60.0 D
67-64-1	Acetone	62.0	220.0 DB
75-15-0	Carbon Disulfide	62.0	U
75-35-4	1,1-Dichloroethene	62.0	U
75-34-3	1,1-Dichloroethane	62.0	U
540-59-0	1,2-Dichloroethene, Total	62.0	1000.0 D
67-66-3	Chloroform	62.0	U
107-06-2	1,2-Dichloroethane	62.0	U
78-93-3	2-Butanone	62.0	U
71-55-6	1,1,1-Trichloroethane	62.0	U
56-23-5	Carbon Tetrachloride	62.0	U
108-05-4	Vinyl Acetate	62.0	U
75-27-4	Bromodichloromethane	62.0	U
78-87-5	1,2-Dichloropropane	62.0	U
10061-01-5	cis-1,3-Dichloropropene	62.0	U
79-01-6	Trichloroethene	62.0	260.0 D
71-43-2	Benzene	62.0	U
124-48-1	Dibromochloromethane	62.0	U
10061-02-6	trans-1,3-Dichloropropene	62.0	U
79-00-5	1,1,2-Trichloroethane	62.0	U
75-25-2	Bromoform	62.0	U
108-10-1	4-Methyl-2-Pentanone	62.0	U
591-78-6	2-Hexanone	62.0	U
79-34-5	1,1,2,2-Tetrachloroethane	62.0	U
127-18-4	Tetrachloroethene	62.0	U
108-88-3	Toluene	62.0	U
108-90-7	Chlorobenzene	62.0	U
100-41-4	Ethylbenzene	62.0	U
100-42-5	Styrene	62.0	U
1330-20-7	Xylenes, Total	62.0	U
110-75-8	2-Chloroethylvinyl ether	62.0	U
95-50-1	1,2-Dichlorobenzene	62.0	U
541-73-1	1,3-Dichlorobenzene	62.0	U
106-46-7	1,4-Dichlorobenzene	62.0	U

FORM I - VOA



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NUDEP 73015

CTDOHS FYH-0554

EPA NY049

PA 68-378

MLNY049

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Newburgh, NY 12550
Tel: (914) 562-0890
Fax: (914) 562-0841

Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: SITP3

Date Collected: 16-APR-99

STL Sample Number: 201646-13

Date Received: 17-APR-99

Client Name: Duke Engineering

Date Extracted:

Project Name: TM8097

Date Analyzed: 22-APR-99

% Solid: 81.2

Report Date: 27-APR-99

Matrix: 3 Soil/Sldg

Column: DB-624

Sample Wt/Vol: 5g

Lab File Id: W0603.D

Level: LOW

Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12	8	J
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	3	U
67-64-1	Acetone	12	200	U
75-15-0	Carbon disulfide	12	3	J
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	340	E
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	23	U
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	270	E
71-43-2	Benzene	12	4	J
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12	250	E
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12	220	U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12	460	E
110-75-0	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



VOLATILE ORGANICS ANALYSIS DATA SHEET

Client ID: S1TP3DL
 STL Lab No.: 201646-13DL
 Client Name: Duke Engineering
 Project Name: TM8097
 % Solid: 81.2
 Matrix: Soil
 Sample Wt/Vol.: 1 g
 Level: low
 Soil Extract Volume: nl

Date Collected: 4/16/99
 Date Received: 4/17/99
 Date Extracted:
 Date Analyzed: 4/21/99
 Report Date: 4/26/99
 Column: DB-624
 Lab File ID: W0596.D
 Dilution Factor: 5
 Soil Aliquot Volume: ul

ok
 4/27/99

CAS No.	Compound	Detection Limit ug/kg	Conc ug/kg
74-87-3	Chloromethane	62.0	U
74-83-9	Bromomethane	62.0	U
75-01-4	Vinyl Chloride	62.0	U
75-00-3	Chloroethane	62.0	U
75-09-2	Methylene Chloride	62.0	U
67-64-1	Acetone	62.0	200.0 DB
75-15-0	Carbon Disulfide	62.0	U
75-35-4	1,1-Dichloroethene	62.0	U
75-34-3	1,1-Dichloroethane	62.0	U
540-59-0	1,2-Dichloroethene, Total	62.0	370.0 D
67-66-3	Chloroform	62.0	U
107-06-2	1,2-Dichloroethane	62.0	U
78-93-3	2-Butanone	62.0	29.0 I D
71-55-6	1,1,1-Trichloroethane	62.0	U
56-23-5	Carbon Tetrachloride	62.0	U
108-05-4	Vinyl Acetate	62.0	U
75-27-4	Bromodichloromethane	62.0	U
78-87-5	1,2-Dichloropropane	62.0	U
10061-01-5	cis-1,2-Dichloropropene	62.0	U
79-01-6	Trichloroethene	62.0	240.0 D
71-43-2	Benzene	62.0	U
124-48-1	Dibromochloromethane	62.0	U
10061-02-6	trans-1,3-Dichloropropene	62.0	U
79-00-5	1,1,2-Trichloroethane	62.0	U
75-25-2	Bromoforn	62.0	U
108-10-1	4-Methyl-2-Pentanone	62.0	U
591-78-6	2-Hexanone	62.0	U
79-34-5	1,1,2,2-Tetrachloroethane	62.0	U
127-18-4	Tetrachloroethene	62.0	U
108-88-3	Toluene	62.0	210.0 D
108-90-7	Chlorobenzene	62.0	U
100-41-4	Ethylbenzene	62.0	210.0 D
100-42-5	Styrene	62.0	U
1330-20-7	Xylenes, Total	62.0	450.0 D
110-75-8	2-Chloroethylvinyl ether	62.0	U
95-50-1	1,2-Dichlorobenzene	62.0	U
541-71-1	1,3-Dichlorobenzene	62.0	U
106-46-7	1,4-Dichlorobenzene	62.0	U

FORM I - VOA



Volatile Organics Analysis Data Sheet
Form 1 Voa
8260B(PP)

Client ID: SITP4	Date Collected: 16-APR-99
STL Sample Number: 201646-14	Date Received: 17-APR-99
Client Name: Duke Engineering	Date Extracted:
Project Name: TM8097	Date Analyzed: 22-APR-99
% Solid: 83.2	Report Date: 27-APR-99
Matrix: 3 Soil/Sldg	Column: DB-624
Sample Wt/Vol: 5g	Lab File Id: W0602.D
Level: LOW	Dilution Factor: 1.00

CAS NO.	Compound	Detection Limit ug/kg	Conc. ug/kg	Data Qualifier
74-87-3	Chloromethane	12		U
74-83-9	Bromomethane	12		U
75-01-4	Vinyl chloride	12		U
75-00-3	Chloroethane	12		U
75-09-2	Methylene chloride	12	3	J
67-64-1	Acetone	12	6	J
75-15-0	Carbon disulfide	12		U
75-35-4	1,1-Dichloroethene	12		U
75-34-3	1,1-Dichloroethane	12		U
540-59-0	1,2-Dichloroethene(total)	12	48	
67-66-3	Chloroform	12		U
107-06-2	1,2-Dichloroethane	12		U
78-93-3	2-Butanone	12	6	J
71-55-6	1,1,1-Trichloroethane	12		U
56-23-5	Carbon tetrachloride	12		U
108-05-4	Vinyl acetate	12		U
75-27-4	Bromodichloromethane	12		U
78-87-5	1,2-Dichloropropane	12		U
10061-01-5	cis-1,3-Dichloropropene	12		U
79-01-6	Trichloroethene	12	13	
71-43-2	Benzene	12		U
124-48-1	Dibromochloromethane	12		U
10061-02-6	trans-1,3-Dichloropropene	12		U
79-00-5	1,1,2-trichloroethane	12		U
75-25-2	Bromoform	12		U
108-10-1	4-Methyl-2-pentanone	12		U
591-78-6	2-Hexanone	12		U
79-34-5	1,1,2,2-Tetrachloroethane	12		U
127-18-4	Tetrachloroethene	12		U
108-88-3	Toluene	12		U
108-90-7	Chlorobenzene	12		U
100-41-4	Ethylbenzene	12		U
100-42-5	Styrene	12		U
1330-20-7	Xylenes, Total	12		U
110-75-8	2-Chloroethylvinylether	12		U
95-50-1	1,2-Dichlorobenzene	12		U
541-73-1	1,3-Dichlorobenzene	12		U
106-46-7	1,4-Dichlorobenzene	12		U



Appendix D

Vinyl Chloride Reporting Limits for Carborundum Samples

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30 April 1999

Severn Trent Laboratories
55 South Park Drive
Colchester VT 05446

Tel: (802) 655-1203
Fax: (802) 655-1248

Ms. Kristin Hanson
Duke Engineering & Services
3075 14th Avenue
Suite 207
Markham, Ontario L3R0G9

Re: Vinyl Chloride Reporting Limits for Carborundum Samples

Dear Ms. Hanson:

This letter is in response to your facsimile sent to my attention on 22 April 1999 regarding the above referenced subject matter. As we discussed, several samples submitted for volatile organic analysis following SW-846 Method 8260 required methanol dilutions based on the concentrations of target analytes. These dilutions resulted in elevated reporting limits for all analytes. In response to your question regarding vinyl chloride estimated values (J) based on the dilutions, I have included an example calculation. Please note that the laboratory default value (estimated value = J) is 0.9ug/kg for vinyl chloride.

1. Estimated Reporting limit (J) for a Soil Methanol Extract

$$\begin{array}{rclclclclcl} \frac{10\text{ml MEOH}}{5\text{g soil}} & \times & & \frac{5\text{ml purge}}{0.1\text{ul}} & \times & 0.9 & = & \frac{45}{0.86\%} & = & 105\text{J (ug/Kg)} \\ & & & \text{(injection volume)} & & \text{(J CRQL)} & & \text{(\%solids)} & & \end{array}$$

Please feel free to call me should you have any questions regarding this information.

Sincerely,

Christopher A. Ouellette
Laboratory Director

Other Laboratory Locations:

- 149 Rempsey Road, North Uxbridge MA 01862
- 16702 Park Row, Suite 110, Houston TX 77084
- 200 Merwin Turnpike, Meriden CT 06468
- 120 Senticone Court, Suite 200, Morrisville NC 27560

- 315 Fulkerson Avenue, Newburgh NY 12550
- 11 Oak Glen Road, Natick MA 01905
- 10000 Lakeside Park, 53 Southwestern Blvd, Warfield MA 01085
- 620 Route 10, Whippany NJ 07981

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